

Conservation Tree/Shrub Groups (CTSGs)

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List of Attributes by Species for Conservation Tree/Shrub Plantings in Nebraska	Includes a complete listing of tree and shrub species and their attributes. This list can be used to select species based on their attributes and the purpose of the planting (e.g., shade tolerance, flooding tolerance, wildlife value, density, wood products, and suckering, other attributes/concerns).	Table 11- Summary Table pp. 107-120

Conservation Tree/Shrub Groups (CTSGs)

Introduction

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters tree/shrubs may be well or poorly suited because of climate, site and soil characteristics. Considering individual species performance under specified conditions of soil, climate, physiography, and management developed CTSGs, including: weed competition, moisture conservation, spacing, and arrangement.

This information provides guidance for selecting species best suited within each of the ten groups of soils within each vegetative zone. It can also be used for predicting survival, height, growth, species attributes and effectiveness for the purpose of the planting. It can be used to select plants for windbreaks, riparian plantings, recreation and wildlife plantings, ornamental or environmental plantings, reforestation, and critical area plantings.

All soil series mapped in the state have been placed with similar soils into one of the 10 CTSGs. Group 2 soils are further divided into subgroups. In addition, species listed in each CTSG are broken down by vegetative zones (rainfall zones). Refer to the map "Nebraska Vegetative Zones," found in Section I-Maps to determine the proper vegetative zone. Because vegetative zones are rather large, climatic differences within a zone should also be considered when recommending species, i.e. some species adapted to the eastern end of a zone may be inadequately adapted to the western end.

Care must be taken to ensure conditions on individual sites are considered when selecting species suitability and performance. A case by case decision may be necessary to determine which CTSG group is most appropriate when an individual site has different characteristics than the CTSG it is listed in. This can occur because inclusions of other soils, site modifications (leveling, drainage manipulation, etc.), soil pH (calcareous sites), irrigation, soil amendments or other differences.

The expected 20-year tree or shrub height and height/spread at maturity is listed in individual tables by CTSG and vegetative zone. This information should be used to determine the arrangement spacing and placement of tree/shrub plantings, area protected by windbreaks, species components, and effectiveness for the purpose, and other planting design considerations.

Named varieties of plants cooperatively released through the NRCS/USDA Plant Materials Program have been listed in the tables. These varieties have proven superior and should be used when they are available.

Space is provided on the front page of each Windbreak Suitability Group for listing of local soils that are applicable to each group and subgroup. District conservationists shall list individual soil map unit symbols in the appropriate group/subgroup for their field office area.

Conservation Tree/Shrub Groups - Index

List of soils placed in the Conservation Tree/Shrub Group or Subgroup. NOTE: All channel phases and all soils on slopes over 17% are in CTSG 10.

Soil	Group or Subgroup
Ackmore2/	2S
Adair (replaced by Mayberry)	4
Aksarben	3
Albaton 1/	2W
Alcester	3
Alda 1/2/	2S
Alda (saline-alkali)	9
Alice	5
Alliance	3
Almeria	2D
Almeria (wet)	10
Altvan	6
Angora	3
Anselmo (0-9%)	5
Anselmo (9-17%)	7
Aowa	1
Ashollow	8
Ascalon	5
Bahl	4
Baltic 1/	2W
Bankard (sl)	5
Bankard (lvfs, lfs)	7
Banks	7
Barney	10
Bayard (0-9%)	5
Bayard (9-17%)	7
Bazile	3
Beckton	4
Belfore	3
Benfield	4
Benkelman	3
Betts	8
Blackloup	2D
Blackwood	3
Blake	1
Blanche	6
Blencoe2/	2S
Blendon	5
Blueridge	10

Soil	Group or Subgroup
Blyburg	1
Boel 1/	2S
Boelus (lfs)2/	5
Bolent 1/	2S
Boone	10
Boyd	4
Bridgeport	3
Bridget	3
Bristow	10
Broadwater	10
Brocksburg	6
Brunswick	7
Buffington	4
Buften	4
Burchard	3
Busher (vfsl)	3
Busher (0-9%)	5
Busher (9-17%)	7
Bushman	8
Butler	2W
Calamus	7
Calco 1/2/	2S
Campus	6
Canlon	10
Canyon	10
Carr	1
Caruso 1/2/	2S
Caruso (saline-alkali)	9
Cass	1
Chappell	6
Chase	2
Cheyenne	6
Clamo	2W
Clarno	3
Colby	8
Coleridge	2S
Colfer	7
Colo 2/	2S
Coly	8
Cooper	1
Cortland	3
Cozad (rare flooding)	1
Corley	2
Cozad (nonflooded)	3
Cozad (saline-alkali)	9

Soil	Group or Subgroup
Craft	1
Craft (alkali)	9
Craft (lvfs)	5
Creighton	3
Crete	4
Crofton	8
Crowther	2D
Cutcomb	10
Dailey (0-6%)	5
Dailey (6-17%)	7
Darr	6
Dawes	4
Deroin	3
Detroit	3
Dickinson	5
Dix	10
Doger	5
Doughboy	1
Dow	3
Draknab	5
Duda (0-6%)	5
Duda (6-17%)	7
Dudley	9
Dunday (0-6%)	5
Dunday (7-17%)	7
Dunn	5
Duroc (flooded & 0-1% nonflooded)	1
Duroc (> 1% nonflooded)	3
Dwyer	7
Eckley	10
Edalgo	4
Els 1/2/	2S
Elsmere2/	2S
Eltree	3
Epping	10
Eudora	1
Exline	10
Filbert	2
Filley	5
Fillmore	2W
Fillmore (drained)	2W
Fishberry	10
Fonner2/	2S
Fontanelle	10

Soil	Group or Subgroup
Forney	2W
Gannett	2D
Gannett (wet)	10
Gates	3
Gavins	10
Gayville	9
Geary	3
Gering 1/2/	2S
Gering (alkali)	9
Gibbon 1/2/	2S
Gibbon (alkali)	9
Gibbon (saline)	9
Glenburg	1
Glenburg (alkali)	9
Glenburg (saline)	9
Glendive	1
Goshen (flooded)	1
Goshen (nonflooded)	3
Gosper	1
Gothenburg	10
Grable	1
Graybert	3
Grigston	1
Grigston (wet substratum)	1
Gymer	4
Hadar	5
Haigler	9
Hall (rare flooding)	1
Hall (nonflooded)	3
Harney	3
Hastings	3
Haverson	1
Havre	1
Haxtun	5
Haynie	1
Hedville	10
Hemingford	3
Hennings	5
Hersh 0-9%)	5
Hersh (9-17%)	7
Hisle	10
Hobbs	1
Hoffland	2D
Hoffland (very wet)	10
Holder	3

Soil	Group or Subgroup
Holdrege	3
Holly Springs 1/	2W
Holt	6
Hord (rare flooding)	1
Hord (nonflooded)	3
Humbarger	1
Ida	8
Imlay	10
Inavale (fs,s; hummocky, 6-17%)	7
Inavale (0-6%)	5
Inglewood	5
Interior	10
Ipage (alkali substratum)	9
Ipage (fs,s; 6-17%)	7
Ipage (lfs,ls,fsl, 0-6%)	5
Janise	10
Janise (drained)	9
Jankosh	10
Jansen	6
Janude	1
Jayem (0-9%)	5
Jayem (9-17%)	7
Johnstown	3
Josburg (fsl,sl)	5
Josburg (L,sil)	3
Judson (0-3%)	1
Judson (3-6%)	3
Kadoka	6
Kanorado	4
Keith	3
Kenesaw	3
Kennebec	1
Kenridge	1
Keota	8
Keya	3
Kezan	2W
Kipson	10
Kuma	3
Kyle	4
Labette	6
Labu	4
Laird	9
Lamo 1/2/	2S
Lamo (wet)	2D
Lamoure2/	2S

Soil	Group or Subgroup
Lancaster	6
Lanham (replaced by Eldago)	4
Las 1/2/	2S
Las Animas 1/2/	2S
Las Animas (alkali)	9
Laurel	9
Lawet (drained) 1/	2D
Lawet (saline-alkali)	9
Lawet (wet)	10
Leisy (fsl, sl)	5
Leisy (L)	3
Leshara2/	2S
Leshara (alkali)	9
Leshara (saline)	9
Lex 1/2/	2S
Lex (saline-alkali)	9
Lexsworth	2
Libory	5
Lisco	10
Lockton2/	2S
Lodgepole	2
Lohmiller	4
Longford	3
Loretto (fsl,sl,lfs,ls)	5
Loretto (L)	3
Loup	2D
Loup (wet)	10
Lute	9
Luton	2W
Lynch	4
Mace	6
Malcolm	3
Malmo	4
Manter	5
Manvel	3
Mariaville	10
Marlake	10
Marshall	3
Marshall (terrace)	1
Maskell (0-2%)	1
Maskell (2-6%)	3
Massie	10
Mayberry (replaced Adair)	4
McCash (0-1%)	1
McCash (1-3%)	3

Soil	Group or Subgroup
McConaughy	3
McCook	1
McCook (saline-alkali)	9
McCuligan	2D
McGrew 1/2/	2S
McGrew (alkali)	9
McKelvie	7
McPaul	1
Meadin	10
Merrick	1
Minatare	10
Minnequa	3
Mitchell	8
Modale	1
Monona	3
Moody	3
Morrill	3
Moville	1
Muck	10
Muir (0-3%)	1
Muir (3-6%)	3
Munjor	1
Muscotah	2
Napa	9
Napier	3
Newman (replaced by Thurman)	5
Nimbro	1
Niobrara	10
Nishna	2W
Nodaway	1
Nora	3
Norka	3
Norrest	4
Novina2/	2S
Nuckolls	3
Nunn	3
Obert	2
Oglala	3
Olbut	9
Olmitz	3
Omadi	1
Onawa 1/2/	2S
Onawet	10
ONeill	6
Onita (nonflooded)	3

Soil	Group or Subgroup
Ord 1/2/	2S
Orella	10
Ortello (sl, fsl)	5
Ortello (L)	3
Orwet 1/	2D
Otero	8
Otoe	4
Ovina 1/2/	2S
Overlake	7
Owego2/	2S
Paka (L)	3
Padonia	4
Pahuk	7
Paka (sl,fsl)	5
Parshall	5
Pathfinder	5
Pawnee	4
Penrose	10
Percival 1/2/	2S
Pierre	4
Pivot	5
Platte 1/2/	2S
Pohocco	3
Ponca	3
Promise	4
Ralton	2
Rauville (replaced by Barney)	2W
Redstoe	6
Ree	3
Reliance	3
Richfield	3
Rokeby (replaced by Chase)	4
Ronson	8
Rosebud	6
Roxbury	1
Rusco	1
Salix	1
Salmo	10
Saltillo	10
Saltine	9
Samsil	10
Sanborn	10
Sandose	5
Sansarc	10
Sarben (0-9%)	5

Soil	Group or Subgroup
Sarben (9-17%)	7
Sarpy	7
Satanta (L,vfsl)	3
Satanta (fsl)	5
Savo	4
Schamber	10
Scott (drained)	2W
Scott	10
Scoville (lfs)	7
Scoville (fs)	5
Selia	10
Sharpsburg	3
Shelby	3
Shell	1
Shingle	10
Sidney	3
Silver Creek	9
Simeon	10
Sogn	10
Solomon 1/	2W
Steinauer	8
Sulco	8
Sully	8
Talmo	10
Tassel	10
Thirtynine	3
Thurman (0-6%)	5
Thurman (6-17%)	7
Tieville	2
Tomek	3
Trent	3
Tripp	3
Tryon	2D
Tryon (wet)	10
Tuthill (fsl)	5
Uly	3
Ulysses	8
Valent	7
Valentine (lfs,ls; 0-3%)	5
Valentine (s,fs; 0-3%)	7
Valentine (3-17%)	7
Vebar	6
Verdel	4
Vetal	5
Volin (replaced by Gibbon)	1

Soil	Group or Subgroup
Vore	1
Wabash	2W
Wakeen	6
Wann 1/2/	2S
Wann (saline-alkali)	9
Wathena	1
Waubonsie	1
Wewela	4
Whitelake	9
Wildhorse	10
Wood River	3
Woodbury 2/	2S
Woodly	5
Wymore	4
Yockey 1/2/	2S
Yockey (alkali)	9
Yutan	3
Zoe	9
Zook	2W

- 1/ These soils are calcareous, use only the trees or shrubs marked with (1/).
- 2/ Soils that are drained so that the seasonal high water table is 2 feet or greater are generally placed in CTSG 3 if they are loamy textured; and CTSG 5 if they are sandy textured. Because of variability in texture and the extent of drainage, a case by case decision may be necessary to determine which CTSG group is most appropriate.



CONSERVATION TREE/SHRUB GROUP 1

Description:

Soils in this group receive beneficial moisture from favorable landscape positions (flooding, runoff from adjacent land), or they have a seasonal high water table from 3 to 5 feet during the growing season. Soil depth is >40 inches to a restrictive layer and Available Water Capacity is >8 inches within the top 5 feet. Some soils undergo frequent to occasional flooding for up to 2 months during the growing season. Soil pH ranges from 5.6-7.8 with a few calcareous soils of pH between 7.8 and 8.4.

Limitations:

These soils generally have few limitations and are some of the best soils for most tree/shrub species. Soils with high pH will have a limited choice of species that are adapted to the site. Competition from grass and weeds is the principal concern in establishment and management of trees and shrubs.

Soils CTSG-1 (List soil map units for your county/field office area)

TABLE 1 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 1

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Arborvitae, American or Northern White Cedar <i>Thuja occidentalis</i>	NOT	Recommended	NOT	Recommended	15-20	25-30/20	15-20	25-30/20
Arborvitae, Oriental <i>Thuja orientalis</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	NOT	Recommended	15-20	15-20/15
Baldcypress <i>Taxodium distichum</i>	NOT	Recommended	20-25	25-30/20	20-25	30-35/20	20-30	40-50/20
Fir, Douglas <i>Pseudotsuga menziesii</i>	NOT	Recommended	NOT	Recommended	20-25	30-35/20	20-30	40-50/20
Fir, White <i>Abies concolor</i>	NOT	Recommended	20-25	30-45/30	20-25	30-45/25	20-30	40-50/25
Juniper, Rocky Mountain <i>Juniperus scopulorum</i> <u>1/</u>	10-20	15-25/15	10-20	15-25/15	NOT	Recommended	NOT	Recommended
Pine, Austrian <i>Pinus nigra</i>	5-25	30-50/20-30	15-30	30-55/20	20-30	35-50/20	20-35	40-60/20
Pine, Eastern White <i>Pinus strobus</i>	NOT	Recommended	25-30	35-40/20	20-25	40-50/20	30-35	40-60/20

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Pine, Jack <i>Pinus banksiana</i>	15-20	30-40/15	15-20	35-45/15	20-30	35-45/15	20-30	35-45/15-20
Pine, Limber <i>Pinus flexilis</i> <u>1/</u>	10-15	25-40/15	10-15	25-45/15-20	15-20	30-45/15-20	20-25	35-55/15-20
Pine, Ponderosa <i>Pinus ponderosa</i> <u>1/</u>	15-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Scotch <i>Pinus sylvestris</i> <u>6/</u>	10-20	25-35/15	15-25	30-40/15	20-30	35-45/15	20-30	40-50/20
Pine, Southwestern White <i>Pinus strobiformis</i>	15-25	30-50/20	15-30	30-55/20	NOT	Recommended	NOT	Recommended
Redcedar, Eastern <i>Juniperus virginiana</i> <u>1/</u>	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20
Spruce, Colorado Blue <i>Picea pungens</i>	15-20	25-35/20-30	15-20	30-40/20-30	20-25	30-45/20-30	15-20	40-60/25-30
Spruce, Norway <i>Picea abies</i>	NOT	Recommended	25-30	30-40/20	25-30	30-45/20	25-35	45-60/25
Spruce, White <i>Picea glauca</i> (variety Black Hills)	15-20	25-35/15	20-25	30-40/20	20-25	30-45/20	20-30	30-45/20

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Apricot, Manchurian <i>Prunus armeniaca</i> var. Mandshurica	NOT	Recommended	5-10	10-15/10	10-15	10-15/10	10-20	10-20/10
Ash, Green (See Table 11 Comments) <i>Fraxinus pennsylvanica</i> <u>1/</u>	15-20 NOT	25-35/25 Recommended	20-25 NOT	30-40/30 Recommended	20-30 NOT	35-50/3 Recommended	25-30 NOT	40-60/30-40 Recommended
Aspen, Quaking <i>Populus tremuloides</i> <u>1/</u>	15-20	30-40	15-20	30-40	15-20	30-40	15-20	30-40
Basswood/ Linden, American <i>Tilia americana</i>	20-25	30-40/30	20-30	30-40/30	20-30	35-45/30	25-35	50-70/30-40
Birch, Paper <u>5/</u> <i>Betula papyrifera</i>	NOT	Recommended	20-30 (Niobrara	45/15-25 Valley only)	20-30 (Niobrara	45/15-25 Valley only)	20-30	50/15-25
Birch, River <u>5/</u> <i>Betula nigra</i>	NOT	Recommended	20-30 (Niobrara	45/15-25 Valley only)	20-30 (Niobrara	45/15-25 Valley only)	20-30	50/15-25
Boxelder <i>Acer negundo</i>	15-20	25-35/20	15-20	25-35/20	15-20	30-35/20	20-25	35-40/20
Catalpa, Northern <i>Catalpa speciosa</i> <u>1/</u>	NOT	Recommended	25-30	25-30/20	25-30	30-40/20	25-30	40-50/25
Cherry, Black <i>Prunus serotina</i>	NOT	Recommended	NOT	Recommended	15-20	35-40/20	20-30	30-50/20

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Cottonwood, Eastern <i>Populus deltoides</i> (Recommended cultivars: Might Mo, Noreaster, Platte) <u>1/</u>	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40-50	50-60	70-90/40-60
Crabapple <i>Malus sp.</i> (Recommended cultivars: Radiant, Siberian, Midwest <u>1/</u> , Roselow Sargent)	8-12	10-15/15	10-15	10-15/15	10-15	10-15/15	5-20	15-20/15
Crabapple, Prairie <i>Malus ionensis</i>	NOT	Recommended	NOT	Recommended	5-20 (Best	15-20/15 soils only)	5-20	15-20/15
Elm, American <i>Ulmus americana</i> <u>1/</u>	15-30	15-35/20	15-35	20-40/20	25-40	25-40/20	25-40	55-60/30
Elm, Siberian <i>Ulmus pumila</i> <u>1/</u>	15-30	15-35/20	15-35	20-40/20	NOT	Recommended	NOT	Recommended
Hackberry <i>Celtis occidentalis</i> <u>1/</u>	15-20	30-40/20	20-25	40-50/20	20-30	45-55/20	20-30	50-60/30
Hawthorn, Cockspur <i>Crataegus crusgalli</i> <u>1/</u>	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15
Hawthorn, Washington <i>Crataegus phaenopyrum</i> <u>1/</u>	15-20	15-20/15	15-20	15-20/15	10-15	10-15	15-20	15-20

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Hickory, Bitternut <i>Carya cordiformis</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	10-15	45-55/20
Hickory, Shagbark <i>Carya ovata</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	10-15	45-55/20
Honeylocust <i>Gleditsia triacanthos</i> <u>1/</u>	15-25	30-40/20	20-30	30-40/20	25-30	35-45/20	25-35	40-50/25-30
Hophornbeam, Eastern <i>Ostrya virginiana</i>	NOT	Recommended	10-15	15-20/10	10-20	20/10	15-20	20-25/10-20
Kentucky Coffeetree <i>Gymnocladus dioicus</i>	20-25	30-40/15	25-30	30-40/20	25-30	35-45/20	25-30	45-70/25-30
Locust, Black <i>Robinia pseudoacacia</i> <u>1/ 2/</u>	20-25	25-35/15	25-30	25-35/15	25-30	35-45/20	25-30	40-50/20
Maple, Amur <i>Acer ginnala</i> Recommended cultivar: Flame	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15	15-20	15-20/15
Maple, Silver <i>Acer saccharinum</i>	25-30	30-40/20-25	25-30	35-45/20-25	30-35	40-60/30-40	35-40	50-70/30-50
Maple, Sugar <i>Acer saccharum</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	20-25	40-50/30

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Mulberry, Red <i>Morus rubra</i> <u>1/</u>	15-20	15-25/15	15-20	30-35/15-20	20-25	35-40/20	20-25	40-45/25-30
Mulberry, Russian or White <i>Morus alba</i> var. <i>tatarica</i> <u>1/</u>	15-20	15-25/15	15-20	30-35/15-20	15-20	35-40/20	20-25	40-45/25-30
Oak, Black <i>Quercus velutina</i>	NOT	Recommended	15-20	35-50/20-25	20-25	40-50/30	25-30	40-60/30-40
Oak, Bur <i>Quercus macrocarpa</i> <u>1/</u>	15-20	25-35/20-25	15-25	30-40/20-30	20-25	45-55/40-50	25-30	60-80/40-60
Oak, Chinkapin <i>Quercus muhlenbergii</i>	NOT	Recommended	15-20	35-50/20-25	20-25	40-50/30	25-30	40-60/30-40
Oak, English <i>Quercus robur</i>	NOT	Recommended	25-35	45-55	25-35	50-60	30-40	55-65
Oak, Gambel <i>Quercus gambelii</i> <u>1/</u>	5-10	15-20	10-15	25	NOT	Recommended	NOT	Recommended
Oak, Northern Red <i>Quercus rubra</i>	NOT	Recommended	15-20	35-50/20-25	20-25	40-50/30	25-30	40-60/30-40
Oak, Pin <i>Quercus palustris</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	25-30	40-60/30-40
Oak, Swamp White <i>Quercus bicolor</i>	NOT	Recommended	15-20	30-40/20	15-25	30-45/20	20-30	40-50/20-30

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Oak, White <i>Quercus alba</i>	NOT	Recommended	15-20	35-50/20-25	20-25	40-50/30	25-30	40-60/30-40
Olive, Russian <i>Elaeagnus angustifolia</i>	10-20	10-20 (Upland sites only)	15-20	15-20 (Upland sites only)	NOT	Recommended	NOT	Recommended
Osage-orange <i>Maclura pomifera</i> <u>1/</u>	NOT	Recommended	15-20	20-25/15	15-20	25-30/15	15-20	30-40/20-25
Pawpaw <i>Asimina Adans.</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	NOT	Recommended	15-20	15-25/10-20
Pear, Harbin <i>Pyrus ussuriensis</i> Recommended cultivar: McDermand	NOT	Recommended	15-20	15-20/15	15-20	15-25/15	20-25	20-25/15
Pecan, Northern <i>Carya illinoensis</i>	NOT	Recommended	NOT	Recommended		60-70 (South of Platte River only)		70-80 (South of Platte River only)
Redbud, Eastern <i>Cercis canadensis</i> <u>1/</u>	NOT	Recommended	10-15	20/10	10-20	10-15/10	15-20	15-20/10-20
Sycamore, American <i>Platanus occidentalis</i>	NOT	Recommended	30	40/50	30-35	40-45/20	35-40	50-70/30-40
Walnut, Black <i>Juglans nigra</i>	20-25	25-30/20	20-25	30-40/30	20-25	40-50/30	25-30	40-60/30

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Willow, Black <i>Salix nigra</i> <u>1/</u>	20-25	25-35/20	20-25	30-35/20	25-30	30-35/20	25-30	35-50/20
Willow, Peachleaf <i>Salix amygdaloides</i> <u>1/</u>	20-25	20-30/20	20-25	20-30/20	20-25	20-30/20	20-25	20-30/20
Willow, White or Golden <i>Salix alba</i> (cultivars Vitellina or Tristis often called Golden Willow <u>1/</u>	20-30	25-35/20	20-25	30-35/20	25-30	30-35/20	25-30	35-40/20

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS SHRUBS	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i> <u>1/</u>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

GROUP 1	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)		20-YEAR HEIGHT (ft)		20-YEAR HEIGHT (ft)		20-YEAR HEIGHT (ft)	
Antelope Bitterbrush <i>Purshia tridentate</i>	2-3		5-10, Panhandle only		NOT Recommended		NOT Recommended	
Blackhaw, Rusty <i>Viburnum rufidulum</i>	NOT Recommended		NOT Recommended		15-20		20-30	
Buffaloberry, Silver <i>Shepherdia</i> <u>1/</u> <i>argentea</i> <u>1/</u>	5-8		10-12		10-12		10-12	
Buttonbush <i>Cephalanthus</i>	NOT Recommended		NOT Recommended		NOT Recommended		8-10	
Caragana (Siberian Peashrub) <i>Caragana arborescens</i> <u>1/</u>	6-8		6-8		6-10		8-10	
Cherry, Nanking <i>Prunus tomentosa</i>	NOT Recommended		4-5		4-5		5-7	

GROUP 1	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Chokeberry, Black <i>Aronia melanocarpa</i>	NOT Recommended	5-8	4-8	6-8
Chokecherry, Common <i>Prunus virginiana</i> <u>1/</u>	5-8	6-12	6-12	8-14
Coralberry <i>Symphoricarpos orbiculatus</i>	NOT Recommended	NOT Recommended	2-3	2-3
Cotoneaster, Peking <i>Cotoneaster acutifolia</i>	4-5	5-6	5-8	5-10
Cranberry, Highbush <i>Viburnum trilobum</i>	NOT Recommended	NOT Recommended	6-12	10-12
Currant, Buffalo <i>Ribes odoratum</i> <u>1/</u>	3-6	3-6	3-6	3-6
Currant, Golden <i>Ribes aureum</i> <u>1/</u>	2-4	2-4	4-6	4-6
Dogwood, Gray <i>Cornus racemosa</i>	4-6	6-8	6-8	6-10
Dogwood, Redosier <i>Cornus sericea</i>	5-6	5-7	6-8	8-10

GROUP 1	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Elderberry <i>Sambucus canadensis</i>	NOT Recommended	4-6	4-6	4-8
Euonymus <i>Euonymus alatus</i> (recommended cultivar: Pink Lady Winterberry)	5-10	5-10	8-14	8-14
Hazelnut, American <i>Corylus americana</i>	NOT Recommended	6-8	6-8	6-10
Honeysuckle, Amur <i>Lonicera maackii</i> recommended cultivar: Cling-red <u>3/</u>	NOT Recommended	5-8	5-8	5-10
Indigo, False <i>Amorpha fruticosa</i>	4-6	6-8	6-8	8-10
Lilac <i>Syringa vulgaris</i> <u>1/</u>	5-6	5-6	5-8	6-10
Juneberry (Saskatoon Serviceberry) <i>Amelanchier alnifolia</i>	5-7	5-7	6-10	6-10

GROUP 1	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Mahogany, Mountain <i>Cercocarpus montana</i> <u>1/</u>	5-10	5-10, Panhandle only	NOT Recommended	NOT Recommended
Nannyberry <i>Viburnum lentago</i> <u>1/</u>	NOT Recommended	NOT Recommended	15-25	15-25
Olive, Autumn <i>Elaeagnus umbellata</i> recommended cultivars: Elsberry, Redwing <u>3/</u>	NOT Recommended	6-10	8-12	12-14
Peashrub, Siberian <i>Caragana aborescens</i>	3-6	4-8	6-10	8-12
Plum, American <i>Prunus americana</i> <u>1/</u>	5-7	5-8	5-8	6-10
Rose, Arkansas <i>Rosa arkansana</i>	1-2	1-2	1-2	1-2
Rose, Hansen <i>Rosa sp.</i>	4-6	4-6	4-8	6-8
Rose, Woods <i>Rosa woodsii</i>	3-5	3-5	4-5	4-5

GROUP 1	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Sagebrush, Big <i>Artemisia tridentata</i>	3-6	NOT Recommended	NOT Recommended	NOT Recommended
Sagebrush, Silver <i>Artemisia cana</i>	3-6	NOT Recommended	NOT Recommended	NOT Recommended
Saltbush, Fourwing <i>Atriplex canescens</i> <u>1/</u>	2-5	NOT Recommended	NOT Recommended	NOT Recommended
Sandcherry, Western <i>Prunus besseyi</i>	2-3	2-3	2-4	3-6
Snowberry, Common <i>Symphoricarpos albus</i>	NOT Recommended	NOT Recommended	3-4	3-4
Snowberry, Western <i>Symphoricarpos occidentalis</i>	3-4	3-4	3-4	3-4

GROUP 1	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Sumac, Skunkbush <i>Rhus trilobata</i> Recommended cultivars: Big horn, Konza fragrant <u>1/</u>	3-5	4-6	4-6	4-8
Willow, Sandbar <i>Salix Exigua</i>	10-15	10-15	10-15	10-15

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ NOT winter hardy in the northern part of zones I, II, III, however NOT a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival
- 6/ Because of Pine Wilt disease Scotch Pine only recommended for Christmas Tree plantings

CONSERVATION TREE/SHRUB GROUP 2

Description:

Soils in this group have a seasonal high water table from 1.5 to 3 feet during the growing season, or have saturated soils in the top 3 feet up to 3 months in a given year.

Limitations:

The degree and length of wetness, pH and drainage will have an affect on the selection of tree and shrub species for soils in this group.

Soils with a favorable seasonal high water table of 3 feet or greater are generally placed in CTSG 3 if they are loamy textured; and CTSG 5 if they are sandy textured. Soils that have perched water tables and normally are in CTSG 4 are generally placed in CTSG 2. Because of variability in texture, and the extent of drainage, a case by case decision may be necessary to determine which CTSG group is most appropriate.

Competition from grass and weeds is the principal concern in establishment and management of trees and shrubs. Spring planting may be delayed because of wet conditions. Soil blowing is a concern on the sandy soils.

Subgroup CTSG 2D - Drained phases of poorly drained sandy and loamy soils:

(List soil map units for your county/field office area)

Subgroup CTSG 2S - Somewhat poorly drained sandy, silty, and loamy soils:

(List soil map units for your county/field office area)

Subgroup CTSG 2W - Poorly drained clayey and silty soils:

(List soil map units for your county/field office area)

TABLE 2 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 2

GROUP 2	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFERS	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Baldcypress <i>Taxodium distichum</i>	NOT	Recommended	20-25	30/20	20-25	30-35/20	20-30	40-50/20

GROUP 2	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Ash, Green (See Table 11 Comments) <i>Fraxinus</i> <i>pennsylvanica</i> <u>1/</u>	15-20 NOT	25-35/25 Recommended	20-25 NOT	30-40/30 Recommended	20-25 NOT	35-45/30 Recommended	25-30 NOT	40-50/30-40 Recommended
Birch, Paper <u>5/</u> <i>Betula papyrifera</i>	NOT	Recommended	20-30 (Niobrara)	45/15-25 Valley only)	20-30 (Niobrara)	45/15-25 Valley only)	20-30	50/15-25
Birch, River <u>5/</u> <i>Betula nigra</i>	NOT	Recommended	20-30 (Niobrara)	45/15-25 Valley only)	20-30 (Niobrara)	45/15-25 Valley only)	20-30	50/15-25
Boxelder <i>Acer negundo</i>	15-20	25-35/20	15-20	25-35/20	15-20	30-35/20	20-25	35-40/20

GROUP 2	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Cottonwood, Eastern <i>Populus deltoides</i> (recommended cultivars: Might Mo, Noreaster, Platte) <u>1/</u>	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40-50	50-60	70-90/40-50
Maple, Silver <i>Acer saccharinum</i>	25-30	30-40/20-25	25-30	35-45/20-25	30-35	40-50/30-40	35-40	50-60/30-40
Oak, Pin <i>Quercus palustris</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	25-30	40-60/30-40
Oak, Swamp White <i>Quercus bicolor</i>	NOT	Recommended	15-20	30-40/20	15-25	30-45/20	25-30	40-50/20-30
Olive, Russian <i>Elaeagnus angustifolia</i> (Recommended cultivar:King-red) <u>1/</u>	10-20	10-20/15 (Upland sites only)	15-20	15-20/15 (Upland sites only)	15-20	15-20/15	15-20	15-20/15
Sycamore, American <i>Platanus occidentalis</i> <u>1/</u>	NOT	Recommended	20-30	40-45/20	30-35	40-45/20	35-40	50-70/30-40
Willow, Black <i>Salix nigra</i> <u>1/</u>	20-25	25-35/20	20-25	30-35/20	25-30	30-35/20-25	25-30	40-60/30
Willow, Peachleaf <i>Salix amygdaloides</i> <u>1/</u>	20-25	20-30/20	20-25	20-30/20	20-25	20-30/20-25	20-25	20-30/30

GROUP 2	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Willow, White <i>Salix alba</i> (Willow, Golden <i>Salix alba</i> var. <i>vitellina</i>) <u>1/</u>	20-25	25-35/20	25-30	30-35/20	25-30	30-35/20	25-30	35-45/20-25

GROUP 2	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Dogwood, Redosier <i>Cornus sericea</i>	5-6	5-7	6-8	8-10
Elderberry <i>Sambucus canadenses</i>	NOT Recommended	4-6	4-6	4-8
Indigo, False <i>Amorpha fruticosa</i>	4-6	6-8	6-8	8-10

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ NOT winter hardy in the northern part of zones I, II, III, however NOT a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival

CONSERVATION TREE/SHRUB GROUP 3

Description:

Soils in this group are well-drained loamy and silty soils with moderate and moderately slow permeability on uplands. These soils have a seasonal high water table of 5 feet during the growing season. Soil depth is >40 inches deep to a restrictive layer and Available Water Capacity is >8 inches within the top 5 feet. Some soils undergo frequent to occasional flooding for up to 2 months during the growing season. Soil pH ranges from 5.6-8.4 and as low as 4.5 in a few soils.

Limitations:

CTSG 2 loamy soils that are drained so that the seasonal high water table is 3 feet or greater are generally placed in this group. Because of variability in texture, and the extent of drainage, a case by case decision may be necessary to determine which CTSG is most appropriate for these sites.

Competition from grass and weeds is the principal concern in establishment and management of trees and shrubs on these soils. Water erosion is a concern on the gently sloping to moderately steep areas.

Soils CTSG 3 (Slopes 17% or less) (List soil map units for your county/field office area)

TABLE 3 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 3

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Arborvitae, American or Northern White Cedar <i>Thuja occidentalis</i>	NOT	Recommended	NOT	Recommended	15-20	25-30/20	15-20	25-30/20
Arborvitae, Oriental <i>Thuja orientalis</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	15-20	25-30/15
Baldcypress <i>Taxodium distichum</i>	NOT	Recommended	NOT	Recommended	20-25	30-35/20	20-30	40-50/20
Fir, Douglas <i>Pseudotsuga menziesii</i>	NOT	Recommended	NOT	Recommended	20-25	30-35/20	20-30	40-50/20
Fir, White <i>Abies concolor</i>	NOT	Recommended	20-25 <u>5</u> /	30-45/25	20-25	30-45/25	20-30	40-50/25
Juniper, Rocky Mountain <i>Juniperus scopulorum</i>	10-20	15-25/15	10-20	15-25/15	NOT	Recommended	NOT	Recommended
Pine, Austrian <i>Pinus nigra</i>	5-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Pine, Eastern White <i>Pinus strobus</i>	NOT	Recommended	25-30 <u>5</u> /	35-40/20	20-25	40-50/20	25-35	40-60/20
Pine, Jack <i>Pinus banksiana</i>	15-20	30-40/15	15-20	35-45/15	15-30	35-45/15	20-30	40-50/15
Pine, Limber <i>Pinus flexilis</i> <u>1</u> /	10-15	25-40/15	10-15	25-45/15-20	15-20	30-45/15-20	20-25	35-55/15-20
Pine, Ponderosa <i>Pinus ponderosa</i>	15-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Scotch <i>Pinus sylvestris</i> <u>6</u> /	10-20	25-35/15	15-25	30-40/15	20-30	35-45/15	20-30	40-50/20
Pine, Southwestern White <i>Pinus strobiformis</i>	15-25	30-50/20	15-30	30-55/20	NOT	Recommended	NOT	Recommended
Redcedar, Eastern <i>Juniperus virginiana</i>	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20
Spruce, Colorado Blue <i>Picea pungens</i>	15-20	25-35/20	15-20	30-40/20	15-25	30-45/20-25	20-30	40-60/25
Spruce, Norway <i>Picea abies</i>	NOT	Recommended	15-25	30-40/20	20-30	30-45/20	20-30	45-60/25

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Spruce, White <i>Picea glauca</i> (variety Black Hills)	15-20	25-35/15	20-25	30-40/20	20-25	30-45/20	20-30	30-45/20

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Apricot, Manchurian <i>Prunus armeniaca</i> var. Mandshurica	NOT	Recommended	5-10	10-15/10	10-15	10-15/10	10-20	10-20/10
Ash, Green (see Table 11 Comments) <i>Fraxinus pennsylvanica</i>	15-20 NOT	25-35/25 Recommended	15-25 NOT	30-40/30 Recommended	20-30 NOT	35-45/30 Recommended	25-30 NOT	40-50/30-40 Recommended
Aspen, Quaking <i>Populus tremuloides</i>	15-20	30-40	15-20	30-40	15-20	30-40	15-20	30-40
Basswood/Linden, American <i>Tilia americana</i>	15-25	30-40/30	25-30	30-40/30	25-30	35-45/30	20-30	50-70/30-40

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Birch, Paper <u>5/</u> <i>Betula papyrifera</i>	NOT	Recommended	20-30 (Niobrara)	45/15-25 Valley only)	20-30 (Niobrara)	45/15-25 Valley only)	20-30	50/15-25
Birch, River <u>5/</u> <i>Betula nigra</i>	NOT	Recommended	20-30 (Niobrara)	45/15-25 Valley only)	20-30 (Niobrara)	45/15-25 Valley only)	20-30	50/15-25
Boxelder <i>Acer negundo</i>	15-20	25-35/20	15-20	25-35/20	15-20	30-35/20	20-25	35-40/20
Catalpa, Northern <i>Catalpa speciosa</i>	NOT	Recommended	25-30	25-30/20	25-30	30-40/20	25-30	40-50/25
Cherry, Black <i>Prunus serotina</i>	NOT	Recommended	NOT	Recommended	15-20	35-40/20	20-30	30-50/20
Cottonwood, Eastern <i>Populus deltoides</i> (Recommended cultivars: Might Mo, Noreaster, Platte)	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40	40-60	70-90/40-50
Crabapple <i>Malus sp.</i> (Recommended cultivars: Radiant, Siberian, Midwest, Roselow Sargent)	5-10	10-15/15	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Crabapple, Prairie <i>Malus ionensis</i>	NOT	Recommended	NOT	Recommended	5-20 (Best)	15-20/15 soils only)	5-20	15-20/15
Elm, Siberian <i>Ulmus pumila</i>	15-30	15-35/20	15-35	20-40/20	NOT	Recommended	NOT	Recommended
Hackberry <i>Celtis occidentalis</i>	15-20	30-40/20	20-25	40-50/20	20-30	45-55/20	20-30	50-60/30
Hawthorn, Cockspur <i>Crataegus crus-galli</i> <u>1/</u>	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15
Hawthorn, Washington <i>Crataegus</i> <i>phaenopyrum</i>	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15	15-20	15-20/15
Hickory, Bitternut <i>Carya cordiformis</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	5-10	45-55/20
Hickory, Shagbark <i>Carya ovata</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	10-15	45-55/20
Honeylocust <i>Gleditsia</i> <i>triacanthos</i>	15-25	30-40/20	20-30	30-40/20	25-30	35-45/20	25-35	40-50/25-30

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Hophornbeam, Eastern <i>Ostrya virginiana</i>	NOT	Recommended	NOT	Recommended	10-20	15-20/10-20	10-20	20-25/10-20
Kentucky Coffeetree <i>Gymnocladus dioicus</i>	20-25	30-40/15	20-25	30-40/20	25-30	35-45/20	25-30	45-70/25-30
Locust, Black <i>Robinia pseudoacacia</i> <u>2/</u>	20-25	25-35/15	25-30	25-35/15	25-30	35-45/20	25-30	40-50/20
Maple, Amur <i>Acer ginnala</i> (Recommended cultivar: Flame)	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15	15-20	15-20/15
Maple, Silver <i>Acer saccharinum</i>	25-30	30-40/20-25	25-30	35-45/20-25	30-35	40-50/30-40	35-40	50-60/30-40
Maple, Sugar <i>Acer saccharum</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	20-25	35-45/30
Mulberry, Red <i>Morus rubra</i>	15-20	15-25/15	15-20	30-35/15-20	20-25	35-40/20	20-25	40-45/25-30

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Mulberry, Russian <i>Morus alba</i> var. <i>tatarica</i>	15-20	15-25/15	15-20	30-35/15-20	15-20	35-40/20	20-25	40-45/25-30
Oak, Black <i>Quercus velutina</i>	NOT	Recommended	NOT	Recommended	20-25	40-50/30	20-25	40-60/30-40
Oak, Bur <i>Quercus macrocarpa</i>	15-20	25-35/15-20	15-25	30-40/20	20-25	35-45/30	20-30	40-60/30-40
Oak, Chinkapin <i>Quercus muhlenbergii</i>	NOT	Recommended	NOT	Recommended	20-25	40-50/30	20-30	40-60/30-40
Oak, English <i>Quercus robur</i>	NOT	Recommended	25-35	45-55	25-35	50-60	30-40	55-65
Oak, Gambel <i>Quercus gambelii</i> <u>1/</u>	5-10	15-20	10-15	25	NOT	Recommended	NOT	Recommended
Oak, Northern Red <i>Quercus rubra</i>	NOT	Recommended	15-20	35-50/25-30	20-25	40-50/30	20-25	40-60/30-40
Oak, Pin <i>Quercus palustris</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	20-30	40-60/30-40

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Oak, Swamp White <i>Quercus bicolor</i>	NOT	Recommended	15-20 <u>5</u> /	30-40/20	15-25	30-45/20	20-30	40-50/20-30
Oak, White <i>Quercus alba</i>	NOT	Recommended	NOT	Recommended	20-25	40-50/30	20-25	40-60/30-40
Olive, Russian <i>Elaeagnus angustifolia</i>	10-20	10-20/15 (Upland sites only)	15-20	15-20/15 (Upland sites only)	NOT	Recommended	NOT	Recommended
Osage-orange <i>Maclura pomifera</i>	NOT	Recommended	15-20	20-25/15	15-20	25-30/15	15-20	30-35/20-25
Pawpaw <i>Asimina Adans.</i>	NOT	Recommended	10-15	15-20/10	15-20	10-20/10	15-20	15-20/10-20
Pear, Harbin <i>Pyrus ussuriensis</i> (Recommended cultivar: McDermant)	NOT	Recommended	15-20	15-20/15	15-20	15-20/15	20-25	20-25/15
Pecan, Northern <i>Carya illinoensis</i>	NOT	Recommended	NOT	Recommended		60-70 (South of Platte River only)		70-80 (South of Platte River only)
Redbud, Eastern <i>Cercis canadensis</i>	NOT	Recommended	10-15	15-20/10	15-20	10-20/10	15-20	15-20/10-20

GROUP 3	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Sycamore, American <i>Platanus occidentalis</i>	NOT	Recommended	20-30	40-45/20	30-35	40-45/20	30-40	50-70/30-40
Walnut, Black <i>Juglans nigra</i>	20-25	25-30/20	20-25	30-40/20	20-25	40-50/20	20-30	40-60/30-35
Willow, Black <i>Salix nigra</i>	20-25	25-35/20	20-25	30-35/20	25-30	30-35/20-25	25-30	40-60/30
Willow, Peachleaf <i>Salix amygdaloides</i>	20-25	20-30/20	20-25	20-30/20	20-25	20-30/20-25	20-25	20-30/30
Willow, White <i>Salix alba</i> (variety Golden willow var. <i>vitellina</i>)	20-30	25-35/20	25-30	30-35/20	25-30	30-35/20	30-35	35-45/20-25

GROUP 3	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Antelope Bitterbrush <i>Purshia tridentate</i>	2-3	2-3, Panhandle only	NOT Recommended	NOT Recommended
Blackhaw, Nannyberry <i>Viburnum lentago</i>	NOT Recommended	NOT Recommended	6-8	8-12
Buffaloberry, Silver <i>Shepherdia argentea</i>	5-8	10-12	10-12	10-12
Buttonbush <i>Cephalanthus</i>	NOT Recommended	NOT Recommended	NOT Recommended	8-10
Caragana (Siberian peashrub) <i>Caragana arborescens</i>	6-8	6-8	8-10	8-10
Cherry, Nanking <i>Prunus tomentosa</i>	NOT Recommended	4-5	4-5	5-7
Chokeberry, Black <i>Aronia melanocarpa</i>	NOT Recommended	5-8	4-8	6-8
Chokecherry, Common <i>Prunus virginiana</i>	5-8	6-12	6-12	8-14

GROUP 3	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Coralberry <i>Symphoricarpos orbiculatus</i>	NOT Recommended	NOT Recommended	2-3	2-3
Cotoneaster, Peking <i>Cotoneaster acutifolia</i>	4-5	5-6	5-8	5-10
Cranberry, Highbush <i>Viburnum trilobum</i>	NOT Recommended	NOT Recommended	6-12	10-12
Currant, Buffalo <i>Ribes odoratum</i>	3-6	3-6	3-6	3-6
Currant, Golden <i>Ribes aureum</i>	2-4	2-4	4-6	4-6
Dogwood, Gray <i>Cornus racemosa</i>	4-6	6-8	6-8	6-8
Dogwood, Redosier <i>Cornus sericea</i>	5-6	5-7	6-8	8-10
Elderberry <i>Sambucus canadenses</i>	NOT Recommended	4-6	4-6	4-8

GROUP 3	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Euonymus <i>Euonymus alatus</i> (Recommended cultivar: Pink Ladywinterberry)	6-10	6-10	8-14	8-14
Hazelnut, American <i>Corylus americana</i>	NOT Recommended	6-8	6-8	6-8
Honeysuckle, Amur <i>Lonicera maackii</i> recommended cultivar: Cling-red <u>3/</u>	5-7	5-8	5-8	5-10
Indigo, False <i>Amorpha fruticosa</i>	NOT Recommended	4-6	4-6	6-8
Juneberry (Saskatoon Serviceberry) <i>Amelanchier alnifolia</i>	5-7	5-7	6-10	6-10
Lilac <i>Syringa vulgaris</i>	5-6	5-6	5-8	6-10

GROUP 3	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Mahogany, Mountain <i>Cercocarpus montana</i> <u>1/</u>	5-10	5-10, Panhandle only	NOT Recommended	NOT Recommended
Olive, Autumn <i>Elaeagnus umbellata</i> recommended cultivars: Elsberry, Redwing <u>3/</u>	NOT Recommended	6-8	8-12	12-14
Plum, American <i>Prunus americana</i>	5-7	5-8	5-8	6-10
Rose, Hansen <i>Rosa sp.</i>	4-6	4-6	4-8	6-8
Sagebrush, Big <i>Artemisia tridentata</i>	3-6	NOT Recommended	NOT Recommended	NOT Recommended
Sagebrush, Silver <i>Artemisia cana</i>	3-6	NOT Recommended	NOT Recommended	NOT Recommended
Saltbush, Fourwing <i>Atriplex canescens</i>	2-5	NOT Recommended	NOT Recommended	NOT Recommended
Sandcherry, Western <i>Prunus bessey</i>	2-3	2-3	2-4	3-6

GROUP 3	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Snowberry, Common <i>Symphoricarpos albus</i>	NOT Recommended	NOT Recommended	3-4	3-4
Snowberry, Western <i>Symphoricarpos occidentalis</i>	3-4	3-4	3-4	3-4
Sumac, Skunkbush <i>Rhus trilobata</i> *Recommended cultivars: Big horn, Konza fragrant)	3-5	4-6	4-6	4-8

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ NOT winter hardy in the northern part of zones I, II, III, however NOT a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival
- 6/ Because of Pine Wilt disease Scotch Pine only recommended for Christmas Tree plantings

CONSERVATION TREE/SHRUB GROUP 4

Description:

Soils in this group are moderately deep to deep, loamy and clayey soils with slow or very slow permeability on uplands. These soils have a seasonal high water table greater than 5 feet during the growing season. Soil depth is >20 inches to a restrictive layer and Available Water Capacity is >5 inches within the top 5 feet. Soil pH ranges from 4.5 to as high as 8.4 on some calcareous soils.

Limitations:

High clay content and drought tolerance have an effect on the selection of tree and shrub species for these soils. Competition from grass and weeds is the principal concern in establishment and management of trees and shrubs. Water erosion is a concern on gently sloping to moderately steep areas.

Soils in this group that have perched water tables are generally appropriate for CTSG 2, because of excessive wetness.

Soils CTSG 4 (Slopes 17% or less) (List soil map units for your county/field office area)

TABLE 4 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 4

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Arborvitae, American or Northern White Cedar <i>Thuja occidentalis</i>	NOT	Recommended	NOT	Recommended	15-20	25-30/20	15-20	25-30/20
Arborvitae, Oriental <i>Thuja orientalis</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	NOT	Recommended	15-20	15-20/15
Baldcypress <i>Taxodium distichum</i>	NOT	Recommended	NOT	Recommended	20-25	30-35/20	20-30	40-50/20
Fir, Douglas <i>Pseudotsuga menziesii</i>	NOT	Recommended	NOT	Recommended	20-25	30-35/20	20-30	40-50/20
Fir, White <i>Abies concolor</i>	NOT	Recommended	20-25 <u>5/</u>	30-45/25	20-25	30-35/25	20-30	40-50/25
Juniper, Rocky Mountain <i>Juniperus scopulorum</i> <u>1/</u>	10-20	15-25/15	10-20	15-25/15	NOT	Recommended	NOT	Recommended
Pine, Austrian <i>Pinus nigra</i>	5-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Pine, Eastern White <i>Pinus strobus</i>	NOT	Recommended	NOT	Recommended	20-25	40-50/20	30-35	40-60/20
Pine, Jack <i>Pinus banksiana</i>	15-20	25-35/15	15-20	30-40/15	20-30	30-45/15	20-30	40-50/15
Pine, Limber <i>Pinus flexilis</i> <u>1/</u>	10-15	25-40/15	10-15	25-45/15-20	15-20	30-45/15-20	20-25	35-55/15-20
Pine, Ponderosa <i>Pinus ponderosa</i> <u>1/</u>	15-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Scotch <i>Pinus sylvestris</i> <u>6/</u>	10-20	25-35/15	15-25	30-40/15	20-30	35-45/15	20-30	40-50/20
Pine, Southwestern White <i>Pinus strobiformis</i>	15-25	30-50/20	15-30	30-55/20	NOT	Recommended	NOT	Recommended
Redcedar, Eastern <i>Juniperus virginiana</i> <u>1/</u>	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20
Spruce, Colorado Blue <i>Picea pungens</i>	15-20	25-35/20	15-20	30-40/20	15-25	30-45/20-25	15-30	40-60/25

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Spruce, Norway <i>Picea abies</i>	NOT	Recommended	25-30	30-40/20	25-30	30-45/20	20-30	45-60/25
Spruce, White <i>Picea glauca</i> (variety Black Hills)	15-20	25-35/15	20-25	30-40/20	20-25	30-45/20	20-30	30-45/20

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Apricot, Manchurian <i>Prunus armeniaca</i> (var. Mandshurica)	NOT	Recommended	5-10	10-15/10	10-15	10-15/10	10-20	10-20/10
Ash, Green (See Table 11 Comments) <i>Fraxinus pennsylvanica</i> <u>1/</u>	15-20 NOT	25-35/25 Recommended	15-25 NOT	30-40/30 Recommended	20-30 NOT	35-45/3 Recommended	25-30 NOT	40-50/30-40 Recommended
Aspen, Quaking <i>Populus tremuloides</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	15-20	20-30	15-20	20-30

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Basswood/Linden, American <i>Tilia americana</i>	20-25	30-40/30	20-30	30-40/30	20-30	35-45/30	25-30	50-70/30-40
Birch, Paper <u>5</u> / <i>Betula papyrifera</i>	NOT	Recommended	20-30 (Niobrara)	45/15-25 Valley only)	20-30 (Niobrara)	45/15-25 Valley only)	20-30	50/15-25
Birch, River <u>5</u> / <i>Betula nigra</i>	NOT	Recommended	20-30 (Niobrara)	45/15-25 Valley only)	20-30 (Niobrara)	45/15-25 Valley only)	20-30	50/15-25
Acer/Boxelder <i>negundo</i>	15-20	25-35/20	15-20	25-35/20	15-20	30-35/20	20-25	35-40/20
Catalpa, Northern <i>Catalpa speciosa</i> <u>1</u> / 	NOT	Recommended	25-30	25-30/20	25-30	30-40/20	25-30	40-50/25
Cherry, Black <i>Prunus serotina</i>	NOT	Recommended	NOT	Recommended	15-20	35-40/20	20-30	30-50/20
Cottonwood, Eastern <i>Populus deltoides</i> <u>1</u> / (Recommended cultivars: Might Mo, Noreaster, Ohio Red, Platte)	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40-50	50-60	70-90/40-50

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Crabapple <i>Malus sp</i> <u>1/</u> (Recommended cultivars: Radiant, Siberian, Midwest, Roselow Sargent)	5-10	10-15/15	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15
Crabapple, Prairie <i>Malus ionensis</i>	NOT	Recommended	NOT	Recommended	5-20 (Best)	15-20/15 soils only)	5-20	15-20/15
Elm, Siberian <i>Ulmus pumila</i> <u>1/</u>	15-30	15-35/20	15-35	20-40/20	NOT	Recommended	NOT	Recommended
Hackberry <i>Celtis occidentalis</i> <u>1/</u>	15-20	30-40/20	20-25	40-50/20	20-30	45-55/20	20-30	50-60/30
Hawthorn, Cockspur <i>Crataegus crus-galli</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	10-15	10-15/15	10-20	10-20/15
Hawthorn, Washington <i>Crataegus phaenopyrum</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	10-15	10-15/15	10-20	10-20/15
Hickory, Bitternut <i>Carya cordiformis</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	10-15	45-55/20

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Hickory, Shagbark <i>Carya ovata</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	10-15	45-55/20
Honeylocust <i>Gleditsia triacanthos</i> <u>1/</u>	15-25	30-40/20	20-30	30-40/20	25-30	35-45/20	25-35	40-50/25-30
Hophornbeam, Eastern <i>Ostrya virginiana</i>	NOT	Recommended	NOT	Recommended	10-20	15-20/10-20	10-20	20-25/10-20
Kentucky Coffeetree <i>Gymnocladus dioicus</i>	NOT	Recommended	NOT	Recommended	25-30	35-45/20	25-30	45-70/25-30
Locust, Black <i>Robinia pseudoacacia</i> <u>1/ 2/</u>	20-25	25-35/15	25-30	25-35-15	25-30	35-45/20	25-30	40-50/20
Maple, Amur <i>Acer ginnala</i> (Recommended cultivar: Flame)	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15	15-20	15-20/15
Maple, Sugar <i>Acer saccharum</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	20-25	35-45/30

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Mulberry, Red <i>Morus rubra</i> <u>1/</u>	15-20	15-25/15	15-20	30-35/15-20	20-25	35-40/20	20-25	40-45/25-30
Mulberry, Russian <i>Morus alba</i> var. <i>tatarica</i> <u>1/</u>	15-20	15-25/15	15-20	30-35/15-20	15-20	35-40/20	20-25	40-45/25-30
Oak, Black <i>Quercus velutina</i>	NOT	Recommended	NOT	Recommended	20-25	40-50/30	20-25	40-60/30-40
Oak, Bur <i>Quercus macrocarpa</i> <u>1/</u>	15-20	25-35/15-20	20-25	30-40/20	20-25	35-45/30	20-30	40-60/30-40
Oak, Chinkapin <i>Quercus muhlenbergii</i>	NOT	Recommended	NOT	Recommended	20-25	40-50/30	20-25	40-60/30-40
Oak, English <i>Quercus robur</i>	NOT	Recommended	NOT	Recommended	25-35	50-60	30-40	55-65
Oak, Gambel <i>Quercus gambelii</i> <u>1/</u>	5-10	15-20	10-15	25	NOT	Recommended	NOT	Recommended
Oak, Northern Red <i>Quercus rubra</i>	NOT	Recommended	15-20	35-50/25-30	20-25	40-50/30	20-25	40-60/30-40

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Oak, Pin <i>Quercus palustris</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	25-30	40-60/30-40
Oak, Swamp White <i>Quercus bicolor</i>	NOT	Recommended	15-20 <u>5</u> /	30-40/20	15-25	30-45/20	20-30	40-50/20-30
Oak, White <i>Quercus alba</i>	NOT	Recommended	NOT	Recommended	20-25	40-50/30	20-25	40-60/30-40
Olive, Russian <u>1</u> / <i>Elaeagnus angustifolia</i> (Recommended cultivar: King-red)	10-20	10-20/15 (Upland sites only)	15-20	15-20/15 (Upland sites only)	NOT	Recommended	NOT	Recommended
Osage-orange <i>Maclura pomifera</i> <u>1</u> /	NOT	Recommended	15-20	20-25/15	15-20	25-30/15	15-20	30-35/20-25
Pawpaw <i>Asimina Adans</i> <u>1</u> /	NOT	Recommended	NOT	Recommended	15-20	10-15/10	15-20	15-20/10-20
Redbud, Eastern <i>Cercis canadensis</i> <u>1</u> /	NOT	Recommended	NOT	Recommended	15-20	10-15/10	15-20	15-20/10-20
Sycamore, American <i>Platanus occidentalis</i> <u>1</u> /	NOT	Recommended	NOT	Recommended	30-35	40-45/20	30-40	50-70/30-40

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Walnut, Black <i>Juglans nigra</i>	20-25	25-30/20	20-25	30-40/20	20-25	40-50/20	20-30	40-60/30-35

GROUP 4	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Antelope Bitterbrush <i>Purshia tridentate</i>	2-3	2-3, Panhandle only	NOT Recommended	NOT Recommended
Blackhaw, Nannyberry <i>Viburnum lentago</i> <u>1/</u>	NOT Recommended	NOT Recommended	6-8	8-12
Buffaloberry, Silver <i>Shepherdia argentea</i> <u>1/</u>	5-8	10-12	10-12	10-12
Buttonbush <i>Cephalanthus</i>	NOT Recommended	NOT Recommended	NOT Recommended	8-10
Caragana (Siberian Peashrub) <i>Caragana arborescen</i>) <u>1/</u>	6-8	6-8	8-10	8-10
Cherry, Nanking <i>Prunus tomentosa</i>	NOT Recommended	4-5	4-5	5-7
Chokeberry, Black <i>Aronia melanocarpa</i>	NOT Recommended	5-8	4-8	6-8
Chokecherry, Common <i>Prunus virginiana</i> <u>1/</u>	5-8	6-12	6-12	8-14

GROUP 4	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Coralberry <i>Symphoricarpos orbiculatus</i>	NOT Recommended	NOT Recommended	2-3	2-3
Cotoneaster, Peking <i>Cotoneaster acutifolia</i>	4-5	5-6	5-8	5-10
Cranberry, Highbush <i>Viburnum trilobum</i>	NOT Recommended	NOT Recommended	6-12	10-12
Currant, Buffalo <i>Ribes odoratum</i> <u>1/</u>	3-6	3-6	3-6	3-6
Currant, Golden <i>Ribes aureum</i> <u>1/</u>	2-4	2-4	4-6	4-6
Dogwood, Gray <i>Cornus racemosa</i>	4-6	6-8	6-8	6-8
Dogwood, Redosier <i>Cornus sericea</i>	5-6	5-7	6-8	8-10
Elderberry <i>Sambucus canadenses</i>	NOT Recommended	4-6	4-6	4-8

GROUP 4	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Euonymus <i>Euonymus alatus</i> (recommended cultivar: Pink Ladywinterberry)	6-10	6-10	8-14	8-14
Hazelnut, American <i>Corylus americana</i>	NOT Recommended	NOT Recommended	6-8	6-8
Honeysuckle, Amur <i>Lonicera maackii</i> (Recommended cultivar: Cling-red) <u>3/</u>	5-7	5-8	5-8	5-10
Indigo, False <i>Amorpha fruticosa</i>	NOT Recommended	4-6	4-6	6-8
Juneberry (Saskatoon Serviceberry) <i>Amelanchier alnifolia</i> <u>1/</u>	5-7	5-7	6-10	6-10
Lilac <i>Syringa vulgaris</i> <u>1/</u>	5-6	5-6	5-8	6-10
Mahogany, Mountain <i>Cercocarpus montana</i> <u>1/</u>	5-10	5-10, Panhandle only	NOT Recommended	NOT Recommended

GROUP 4	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Olive, Autumn <i>Elaeagnus umbellata</i> (Recommended cultivars: Elsberry, Redwing) <u>3/</u>	NOT Recommended	6-8	8-12	12-14
Plum, American <i>Prunus americana</i> <u>1/</u>	5-7	5-8	5-8	6-10
Rose, Hansen <i>Rosa sp.</i>	4-6	4-6	4-8	6-8
Sagebrush, Big <i>Artemisia tridentata</i>	3-6	NOT Recommended	NOT Recommended	NOT Recommended
Sagebrush, Silver <i>Artemisia cana</i>	3-6	NOT Recommended	NOT Recommended	NOT Recommended
Saltbush, Fourwing <i>Atriplex canescens</i> <u>1/</u>	2-5	NOT Recommended	NOT Recommended	NOT Recommended
Sandcherry, Western <i>Prunus bessey</i>	2-3	2-3	2-4	3-6
Snowberry, Common <i>Symphoricarpos albus</i>	NOT Recommended	NOT Recommended	3-4	3-4

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)		20-YEAR HEIGHT (ft)		20-YEAR HEIGHT (ft)		20-YEAR HEIGHT (ft)	
Snowberry, Western <i>Symphoricarpos occidentalis</i>	3-4		3-4		3-4		3-4	
Sumac, Skunkbush <i>Rhus trilobata</i> (Recommended cultivars: Big horn, Konza fragrant) <u>1/</u>	3-5		4-6		4-6		4-8	

GROUP 4	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS SHRUBS	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i> <u>1/</u>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

1/ Adapted to calcareous soils

2/ While the plant may grow, its severely impacted by insect damage

3/ NOT winter hardy in the northern part of zones I, II, III, however NOT a problem in zone IV

4/ Requires conservation mulch to get established in zones I and II only

5/ Conservation mulch improves growth and survival

6/ Because of Pine Wilt disease Scotch Pine only recommended for Christmas Tree plants

CONSERVATION TREE/SHRUB GROUP 5

Description:

Soils in this group are loamy and sandy soils. These soils have a seasonal high water table greater than 5 feet during the growing season. Soil depth is >40 inches to a restrictive layer and Available Water Capacity is 4-8 inches within the top 5 feet. Some soils undergo frequent to occasional flooding for up to 2 months during the growing season. Soil pH ranges from 5.6-8.4 and as low as 4.5 in a few soils.

Limitations:

Competition from grass and weeds and soil blowing are the principal concerns in establishment and management of trees and shrubs on these soils.

Soils CTSG 5 (Slopes dominantly less than 6% but range up to 17%)
(List soil map units for your county/field office area)

TABLE 5 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 5

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Arborvitae, American or Northern White Cedar <i>Thuja occidentalis</i>	NOT	Recommended	NOT	Recommended	15-20	25-30/20	15-20	25-30/20
Arborvitae, Oriental <i>Thuja orientalis</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	NOT	Recommended	15-20	15-20/15
Baldcypress <i>Taxodium distichum</i>	NOT	Recommended	NOT	Recommended	20-25	30-35/20	20-30	40-50/20
Juniper, Rocky Mountain <i>Juniperus scopulorum</i> <u>1/</u>	10-20	15-25/15	10-20	15-25/15	NOT	Recommended	NOT	Recommended
Pine, Austrian <i>Pinus nigra</i>	5-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Eastern White <i>Pinus strobus</i>	NOT	Recommended	NOT	Recommended	25-30	40-50/20	30-35	40-60/20
Pine, Jack <i>Pinus banksiana</i>	15-20	25-35/15	15-20	30-40/15	15-30	35-40/15	20-30	40-45/15

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Pine, Limber <i>Pinus flexilis</i> <u>1</u> /	10-15	25-40/15	10-15	25-45/15-20	15-20	30-45/15-20	20-25	35-55/15-20
Pine, Ponderosa <i>Pinus ponderosa</i> <u>1</u> /	15-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Scotch <i>Pinus sylvestris</i> <u>6</u> /	10-20	25-35/15	15-25	30-40/15	20-30	35-45/15	20-30	40-50/20
Pine, Southwestern White <i>Pinus strobiformis</i>	15-25	30-50/20	15-30	30-55/20	NOT	Recommended	NOT	Recommended
Redcedar, Eastern <i>Juniperus virginiana</i> <u>1</u> /	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20
Spruce, Colorado Blue <i>Picea pungens</i>	NOT	Recommended	NOT	Recommended	20-25	30-45/20-25	20-30	40-60/25
Spruce, Norway <i>Picea abies</i>	NOT	Recommended	NOT	Recommended	25-30	30-45/20	25-30	45-60/25
Spruce, White <i>Picea glauca</i> (variety Black Hills)	15-20	25-35/15	20-25	30-40/20	20-25	30-45/20	25-30	30-45/20

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Apricot, Manchurian <i>Prunus armeniaca</i> var. Mandshurica	NOT	Recommended	NOT	Recommended	10-15	10-15/10	10-20	10-20/10
Ash, Green (See Table 11 Comments) <i>Fraxinus pennsylvanica</i> <u>1/</u>	15-20 NOT	25-35/25 Recommended	20-25 NOT	30-40/30 Recommended	20-30 NOT	35-45/30 Recommended	25-30 NOT	40-50/30-40 Recommended
Aspen, Quaking <i>Populus tremuloides</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	15-20	20-30	15-20	20-30
Basswood/Linden, American <i>Tilia americana</i>	20-25	30-40/30	25-30	30-40/30	25-30	35-45/30	25-30	40-50/30
Birch, Paper <u>5/</u> <i>Betula papyrifera</i>	NOT	Recommended	20-30 (Niobrara	45/15-25 Valley only)	20-30 (Niobrara	45/15-25 Valley only)	20-30	50/15-25
Birch, River <u>5/</u> <i>Betula nigra</i>	NOT	Recommended	20-30 (Niobrara	45/15-25 Valley only)	20-30 (Niobrara	45/15-25 Valley only)	20-30	50/15-25
Boxelder <i>Acer negundo</i>	15-20	25-35/20	15-20	25-35/20	20-25	30-35/20	20-25	35-40/20

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Catalpa, Northern <i>Catalpa speciosa</i> <u>1/</u>	NOT	Recommended	25-30	25-30/20	25-30	30-40/20	25-30	40-50/25
Crabapple <i>Malus sp.</i> (Recommended cultivars: Radiant, Siberian, Midwest, Roselow Sargent) <u>1/</u>	10-15	10-15/15	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15
Elm, Siberian <i>Ulmus pumila</i> <u>1/</u>	20-25	20-35/20	20-30	35-45/20	NOT	Recommended	NOT	Recommended
Hackberry <i>Celtis occidentalis</i> <u>1/</u>	15-20	30-40/20	20-25	40-50/20	20-30	45-55/20	20-30	50-60/30
Hawthorn, Cockspur <i>Crataegus crus-galli</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	10-15	15-20/15	15-20	15-20/15

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Hawthorn, Washington <i>Crataegus phaenopyrum</i> <u>1/</u>	NOT	Recommended	10-15	15-20/15	10-15	15-20/15	15-20	15-20/15
Hickory, Bitternut <i>Carya cordiformis</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	10-15	45-55/20
Hickory, Shagbark <i>Carya ovata</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	10-15	45-55/20
Honeylocust <i>Gleditsia triacanthos</i> <u>1/</u>	15-25	30-40/20	20-30	30-40/20	25-30	35-45/20	25-35	40-50/25-30
Kentucky Coffeetree <i>Gymnocladus dioicus</i>	NOT	Recommended	NOT	Recommended	25-30	35-45/20	25-30	45-70/25-30
Locust, Black <i>Robinia pseudoacacia</i> <u>1/</u> <u>2/</u>	20-25	25-35/15	25-30	25-35/15	25-30	35-45/20	25-30	40-50/20
Maple, Amur <i>Acer ginnala</i> (Recommended cultivar: Flame)	10-15	10-15/15	10-15	10-15/15	15-20	15-20/15	15-20	15-20/15

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Maple, Silver <i>Acer saccharinum</i>	25-30	30-40/20-25	25-30	35-45/20-25	30-35	40-50/30-40	35-40	50-60/30-40
Maple, Sugar <i>Acer saccharum</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	20-25	35-45/30
Mulberry, Red <i>Morus rubra</i> <u>1/</u>	15-20	15-25/15	15-20	30-35/15-20	20-25	35-40/20	20-25	40-45/25-30
Mulberry, Russian <i>Morus alba</i> var. <i>tatarica</i> <u>1/</u>	15-20	15-25/15	15-20	30-35/15-20	15-20	35-40/20	20-25	40-45/25-30
Oak, Black <i>Quercus velutina</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	25-30	40-60/30-40
Oak, Bur <i>Quercus macrocarpa</i> <u>1/</u>	15-20	25-35/15-20	20-25	30-40/20	20-25	35-45/30	25-30	40-60/30-40
Oak, English <i>Quercus robur</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	30-40	55-65
Oak, Gambel <i>Quercus gambelii</i> <u>1/</u>	5-10	15-20	10-15	25	NOT	Recommended	NOT	Recommended

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Oak, Northern Red <i>Quercus rubra</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	25-30	40-60/30-40
Oak, Swamp White <i>Quercus bicolor</i>	NOT	Recommended	NOT	Recommended	15-25	30-45/20	25-30	40-50/20-30
Oak, White <i>Quercus alba</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	25-30	40-60/30-40
Olive, Russian <i>Elaeagnus angustifolia</i> <u>1/</u> (Recommended cultivar: King-red)	10-20	10-20/15 (Upland sites only)	15-20	15-20/15 (Upland sites only)	NOT	Recommended	NOT	Recommended
Osage-orange <i>Maclura pomifera</i> <u>1/</u>	NOT	Recommended	15-20	20-25/15	15-20	25-30/15	15-20	30-35/20-25
Pear, Harbin <i>Pyrus ussuriensis</i> Recommended cultivar:McDermand	NOT	Recommended	NOT	Recommended	15-20	15-20/15	20-25	20-25/15
Sycamore, American <i>Platanus occidentalis</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	NOT	Recommended	25-30	30-40/30-40

GROUP 5	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Antelope Bitterbrush <i>Purshia tridentate</i>	2-3	2-3, Panhandle only	NOT Recommended	NOT Recommended
Blackhaw, Nannyberry <i>Viburnum lentago</i> <u>1/</u>	NOT Recommended	NOT Recommended	6-8	8-12
Buffaloberry, Silver <i>Shepherdia argentea</i> <u>1/</u>	5-8	10-12	10-12	10-12
Buttonbush <i>Cephalanthus</i>	NOT Recommended	NOT Recommended	NOT Recommended	8-10
Caragana (Siberian Peashrub) <i>Caragana arborescens</i> <u>1/</u>	6-8	6-8	6-10	8-10
Cherry, Nanking <i>Prunus tomentosa</i>	NOT Recommended	NOT Recommended	4-5	5-7
Chokeberry, Black <i>Aronia melanocarpa</i>	NOT Recommended	5-8	5-8	5-8
Chokecherry, Common <i>Prunus virginiana</i> <u>1/</u>	5-8	6-12	6-12	8-14

GROUP 5	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Coralberry <i>Symphoricarpos orbiculatus</i>	NOT Recommended	NOT Recommended	2-3	2-3
Cotoneaster, Peking <i>Cotoneaster acutifolia</i>	4-5	5-6	5-8	5-10
Cranberry, Highbush <i>Viburnum trilobum</i>	NOT Recommended	NOT Recommended	6-8	6-10
Currant, Buffalo <i>Ribes odoratum</i> <u>1/</u>	3-6	3-6	3-6	3-6
Currant, Golden <i>Ribes aureum</i> <u>1/</u>	2-4	2-4	4-6	4-6
Dogwood, Gray <i>Cornus racemosa</i>	NOT Recommended	6-8	6-8	6-8
Dogwood, Redosier <i>Cornus sericea</i>	5-6	5-7	6-8	8-10
Elderberry <i>Sambucus canadenses</i>	NOT Recommended	4-6	4-6	4-8

GROUP 5	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Euonymus <i>Euonymus alatus</i> (Recommended cultivar: Pink Ladywinterberry)	6-10	6-10	8-14	8-14
Honeysuckle, Amur <i>Lonicera maackii</i> (Recommended cultivar: Cling-red) <u>3/</u>	5-7	5-8	5-8	5-10
Juneberry, (Saskatoon Serviceberry) <i>Amelanchier alnifolia</i> <u>1/</u>	5-7	5-7	6-10	6-10
Lilac <i>Syringa vulgaris</i> <u>1/</u>	5-6	5-6	5-8	6-10
Mahogany, Mountain <i>Cercocarpus montana</i> <u>1/</u>	5-10	5-10, Panhandle only	NOT Recommended	NOT Recommended

GROUP 5	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Olive, Autumn <i>Elaeagnus umbellata</i> (Recommended cultivars: Elsberry, Redwing) <u>3/</u>	NOT Recommended	NOT Recommended	8-12	12-14
Plum, American <i>Prunus americana</i> <u>1/</u>	5-7	5-8	5-8	6-10
Rose, Hansen <i>Rosa sp.</i>	4-6	4-6	4-8	6-8
Sagebrush, Big <i>Artemisia tridentata</i>	3-6	NOT Recommended	NOT Recommended	NOT Recommended
Sagebrush, Silver <i>Artemisia cana</i>	3-6	NOT Recommended	NOT Recommended	NOT Recommended
Saltbush, Fourwing <i>Atriplex canescens</i> <u>1/</u>	2-5	NOT Recommended	NOT Recommended	NOT Recommended
Sandcherry, Western <i>Prunus bessey</i>	2-3	2-3	2-4	3-6

GROUP 5	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Snowberry, Common <i>Symphoricarpos albus</i>	NOT Recommended	NOT Recommended	3-4	3-4
Snowberry, Western <i>Symphoricarpos occidentalis</i>	3-4	3-4	3-4	3-4
Sumac, Skunkbush <i>Rhus trilobata</i> (Recommended cultivars: Big horn, Konza fragrant) <u>1/</u>	3-5	4-6	4-6	4-8

GROUP 5	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS SHRUBS	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i> <u>1/</u>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ NOT winter hardy in the northern part of zones I, II, III, however NOT a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival
- 6/ Because of Pine Wilt disease Scotch Pine only recommended for Christmas Tree plantings

CONSERVATION TREE/SHRUB GROUP 6

Description:

Soils in this group are well-drained, loamy and silty soils that have sand and gravel or root restrictive features between 20 and 60 inches. These soils have a seasonal high water table greater than 5 feet and Available Water Capacity is >2 inches within the top 5 feet.

Limitations:

Drought tolerance will have an affect on the selection of tree and shrub species for use on these soils. Competition from grass and weeds is the principal concern in establishment and management of trees and shrubs. Water erosion is a concern on gently sloping to moderately steep areas.

Soils CTSG 6: (Slopes 17% or less) (List soil map units for your county/field office area)

TABLE 6 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 6

GROUP 6	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFERS	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Rocky Mountain <i>Juniperus scopulorum</i> <u>1</u> /	10-20	15-25/15	10-20	15-25/15	NOT	Recommended	NOT	Recommended
Pine, Austrian <i>Pinus nigra</i>	5-15	20-25/20	15-20	20-25/20	15-20	25-35/20	20-25	30-40/20
Pine, Jack <i>Pinus banksiana</i>	10-15	20-25/15	10-15	20-25/15	15-25	25-30/15	15-25	25-30/15
Pine, Limber <i>Pinus flexilis</i> <u>1</u> /	10-15	25-40/15	10-15	25-45/15-20	15-20	30-45/15-20	20-25	35-55/15-20
Pine, Ponderosa <i>Pinus ponderosa</i> <u>1</u> /	15-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Scotch <i>Pinus sylvestris</i> <u>6</u> /	10-15	20-25/15	10-15	20-25/15	15-20	25-30/15	15-20	25-30/15
Pine, Southwestern White <i>Pinus strobiformis</i>	15-25	30-50/20	15-30	30-55/20	NOT	Recommended	NOT	Recommended
Redcedar, Eastern <i>Juniperus virginiana</i> <u>1</u> /	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20

GROUP 6	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Ash, Green (See Table 11 Comments) <i>Fraxinus pennsylvanica</i> <u>1/</u>	15-20 NOT	25-35/25 Recommended	20-25 NOT	30-40/30 Recommended	20-30 NOT	35-45/30 Recommended	25-30 NOT	40-50/30-40 Recommended
Aspen, Quaking <i>Populus tremuloides</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	15-20	20-30	15-20	20-30
Catalpa, Northern <i>Catalpa speciosa</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	15-20	30-35/20	15-20	30-35/20
Elm, Siberian <i>Ulmus pumila</i> <u>1/</u>	15-30	15-35/20	15-35	20-40/20	NOT	Recommended	NOT	Recommended
Hackberry <i>Celtis occidentalis</i> <u>1/</u>	15-20	30-40/20	20-25	40-50/20	20-30	45-55/20	20-30	50-60/30
Honeylocust <i>Gleditsia triacanthos</i> <u>1/</u>	15-25	30-40/20	20-30	30-40/20	25-30	35-45/20	25-35	40-50/25-30
Mulberry, Red <i>Morus rubra</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	10-15	20-25/15	10-15	20-25/20
Mulberry, Russian <i>Morus alba</i> var. <i>tatarica</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	10-15	20-25/15	10-15	20-25/20
Oak, Bur <i>Quercus macrocarpa</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	10-15	20-25/20	10-15	20-25/20

GROUP 6	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Oak, Gambel <i>Quercus gambelii</i> 1/	5-10	15-20	10-15	25	NOT	Recommended	NOT	Recommended
Olive, Russian <i>Elaeagnus angustifolia</i> (Recommended cultivar: King-red) 1/	10-20	10-20/15 (Upland sites only)	15-20	15-20/15 (Upland sites only)	NOT	Recommended	NOT	Recommended
Osage-orange <i>Maclura pomifera</i> 1/	NOT	Recommended	NOT	Recommended	10-15	20-30/15	15-20	30-35/20-25
Pear, Harbin <i>Pyrus ussuriensis</i> (Recommended cultivar: McDermand)	NOT	Recommended	NOT	Recommended	15-20	15-20/15	20-25	20-25/15

GROUP 6	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Antelope Bitterbrush <i>Purshia tridentate</i>	2-3	2-3, Panhandle only	NOT Recommended	NOT Recommended
Buffaloberry, Silver <i>Shepherdia argentea</i> <u>1/</u>	5-8	10-12	10-12	10-12
Buttonbush <i>Cephalanthus</i>	NOT Recommended	NOT Recommended	NOT Recommended	8-10
Caragana (Siberian Peashrub) <i>Caragana arborescens</i> <u>1/</u>	6-8	6-8	6-10	8-10
Chokecherry, Common <i>Prunus virginiana</i> <u>1/</u>	5-8	6-12	6-12	8-14
Coralberry <i>Symphoricarpos orbiculatus</i>	NOT Recommended	NOT Recommended	2-3	2-3
Cotoneaster, Peking <i>Cotoneaster acutifolia</i>	4-5	5-6	5-8	5-10
Currant, Buffalo <i>Ribes odoratum</i> <u>1/</u>	3-6	3-6	3-6	3-6
Currant, Golden <i>Ribes aureum</i> <u>1/</u>	2-4	2-4	4-6	4-6

GROUP 6	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Dogwood, Gray <i>Cornus racemosa</i>	NOT Recommended	NOT Recommended	NOT Recommended	6-8
Dogwood, Redosier <i>Cornus sericea</i>	NOT Recommended	NOT Recommended	NOT Recommended	8-10
Honeysuckle, Amur <i>Lonicera maackii</i> (Recommended cultivar: Cling-red) <u>3/</u>	NOT Recommended	5-8	5-8	5-10
Juneberry (Saskatoon Serviceberry) <i>Amelanchier alnifolia</i> <u>1/</u>	5-7	5-7	6-10	6-10
Lilac <i>Syringa vulgaris</i> <u>1/</u>	NOT Recommended	5-6	5-8	6-10
Mahogany, Mountain <i>Cercocarpus montana</i> <u>1/</u>	5-10	5-10, Panhandle only	NOT Recommended	NOT Recommended
Plum, American <i>Prunus americana</i> <u>1/</u>	5-7	5-8	5-8	6-10
Rose, Hansen <i>Rosa sp.</i>	4-6	NOT Recommended	NOT Recommended	NOT Recommended
Sagebrush, Big <i>Artemisia tridentata</i>	3-6	NOT Recommended	NOT Recommended	NOT Recommended

GROUP 6	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Sagebrush, Silver <i>Artemisia cana</i>	3-6	NOT Recommended	NOT Recommended	NOT Recommended
Saltbush, Fourwing <i>Atriplex canescens</i> <u>1/</u>	2-5	NOT Recommended	NOT Recommended	NOT Recommended
Sandcherry, Western <i>Prunus bessey</i>	2-3	2-3	2-4	3-6
Snowberry, Common <i>Symphoricarpos albus</i>	NOT Recommended	NOT Recommended	2-3	2-3
Snowberry, Western <i>Symphoricarpos occidentalis</i>	2-3	2-3	2-3	2-3
Sumac, Skunkbush <i>Rhus trilobata</i> (Recommended cultivars: Big horn, Konza fragrant) <u>1/</u>	3-5	4-6	4-6	4-8

GROUP 6	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS SHRUBS	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i> <u>1/</u>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ NOT winter hardy in the northern part of zones I, II, III, however NOT a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival
- 6/ Because of Pine Wilt disease Scotch Pine only recommended for Christmas Tree plantings

CONSERVATION TREE/SHRUB GROUP 7

Description:

Soils in this group are excessively drained, sandy soils with a depth >40 inches to a restrictive layer. The Available Water Capacity is as low as 2 inches within the top 5 feet. Soil pH ranges from 5.6-7.8 with a pH as low as 4.5 for coarse loamy soils on 9-17% slopes.

Limitations:

Drought conditions and soil blowing are the principal concerns in establishment and management of trees and shrubs on these soils. Specialized site preparation and specialized planting methods (vegetation between the rows is normally left undisturbed) are needed to establish the trees and shrubs

Soils CTSG 7 (Slopes 17% or less) (List soil map units for your county/field office area)

TABLE 7 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 7

GROUP 7	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Rocky Mountain <i>Juniperus scopulorum</i>	10-20	15-25/15	10-20	15-25/15	NOT	Recommended	NOT	Recommended
Pine, Austrian <i>Pinus nigra</i>	NOT	Recommended	10-15	20-25/20	10-20	25-35/20	20-25	30-40/20
Pine, Bristlecone <i>Pinus aristata</i>	5-10	20-25/15	NOT	Recommended	NOT	Recommended	NOT	Recommended
Pine, Jack <i>Pinus banksiana</i>	10-15	20-25/15	10-15	20-25/15	15-25	25-35/15	15-25	25-30/15
Pine, Limber <i>Pinus flexilis</i>	5-10	15-20/10	5-10	15-20/10	10-15	20-30/20	15-20	25-35/20
Pine, Pinion <i>Pinus edulis</i>	5-10	15-20/15-20	NOT	Recommended	NOT	Recommended	NOT	Recommended
Pine, Ponderosa <i>Pinus ponderosa</i>	10-20	30-40/20	10-20	30-45/20	20-30	35-45/20	20-35	35-45/20
Pine, Scotch <i>Pinus sylvestris</i> <u>6/</u>	NOT	Recommended	5-10	20-30/15	10-20	35-45/15	20-30	35-45/20
Pine, Southwestern White <i>Pinus strobiformis</i>	10-20	30-40/20	10-20	30-45/20	NOT	Recommended	NOT	Recommended

GROUP 7	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Redcedar, Eastern <i>Juniperus virginiana</i>	10-20	20-25/15	10-25	20-25/15	10-25	25-35/15-20	15-25	25-35/20

GROUP 7	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Apricot, Manchurian <i>Prunus armeniaca</i> var. <i>Mandshurica</i> <u>5/</u>	NOT	Recommended	NOT	Recommended	10-15	10-15/10	10-20	10-20/10
Ash, Green (See Table 11 Comments) <i>Fraxinus pennsylvanica</i> <u>4/</u>	NOT	Recommended	10-15 NOT	20-25 Recommended	10-15 NOT	20-25 Recommended	10-15 NOT	20-25 Recommended
Elm, Siberian <i>Ulmus pumila</i> <u>5/</u>	5-20	30-35	15-20	30-35	NOT	Recommended	NOT	Recommended
Hackberry <i>Celtis occidentalis</i> <u>4/</u>	10-15	25-30	10-15	25-30	10-15	25-30	10-15	30-35
Honeylocust <i>Gleditsia triacanthos</i> <u>4/</u>	NOT	Recommended	10-15	20-25	10-15	20-25	25-35	40-50/25-30

GROUP 7	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Mulberry, Red <i>Morus rubra</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	20-25	20-25/15
Mulberry, Russian <i>Morus alba</i> var. <i>tatarica</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	20-25	20-25/15
Oak, Bur <i>Quercus macrocarpa</i> <u>5/</u>	NOT	Recommended	NOT	Recommended	10-15	25-35/20-30	15-20	30-40
Oak, English <i>Quercus robur</i>	NOT	Recommended	NOT	Recommended	NOT	Recommended	30-40	55-65
Oak, Gambel <i>Quercus gambelii</i> 1/	5-10	15-20	10-15	25	NOT	Recommended	NOT	Recommended
Osage-orange <i>Maclura pomifera</i>	NOT	Recommended	NOT	Recommended	10-15	20-25/15-20	10-15	30-35/20-25

GROUP 7	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Buffaloberry, Silver <i>Shepherdia argentea</i> <u>5/</u>	5-8	10-12	10-12	10-12
Caragana (Siberian Peashrub) <i>Caragana</i> <i>arborescens</i> <u>5/</u>	6-8	6-8	8-10	8-10
Chokecherry, Common <i>Prunus virginiana</i> <u>5/</u>	5-8	6-12	6-12	8-14
Currant, Buffalo <i>Ribes odoratum</i> <u>5/</u>	2-4	2-4	2-4	2-4
Currant, Golden <i>Ribes aureum</i> <u>5/</u>	2-4	2-4	4-6	4-6
Plum, American <i>Prunus americana</i> <u>5/</u>	5-7	5-8	5-8	6-10
Rose, Hansen <i>Rosa sp.</i>	4-6	4-6	4-8	6-8
Sandcherry, Western <i>Prunus bessey</i> <u>5/</u>	2-3	2-3	2-4	3-6

GROUP 7	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)		20-YEAR HEIGHT (ft)		20-YEAR HEIGHT (ft)		20-YEAR HEIGHT (ft)	
Snowberry, Western <i>Symphoricarpos occidentalis</i>	2-3		2-3		2-3		2-3	
Sumac, Skunkbush <i>Rhus trilobata</i> Recommended cultivars: Big horn, Konza fragrant <u>5/</u>	3-5		4-6		4-6		4-8	

GROUP 7	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS SHRUBS	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i> <u>5/</u>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ NOT winter hardy in the northern part of zones I, II, III, however NOT a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival
- 6/ Because of Pine Wilt disease Scotch Pine only recommended for Christmas Tree plantings

Section II – WINDBREAK INTERPRETATIONS

CONSERVATION TREE/SHRUB GROUP 8

Description:

Soils in this group are calcareous at or near the surface (0 to 12 inches) and do NOT receive beneficial moisture from run-in, flooding or seasonal high water table. Soil depth is >40 inches to a restrictive layer and Available Water Capacity is >8 inches within the top 5 feet. Soil pH ranges from 6.5-8.4.

Limitations:

High calcium carbonate content and competition from grass and weeds are the principal concerns in establishment and management of trees and shrubs on these soils. Water erosion is a concern on gently sloping to moderately steep areas.

Soils CTSG 8 (Slopes 17% or less) (List soil map units for your county/field office area)

TABLE 8 - CONSERVATION TREE AND SHRUB SUITABILITY for GROUP 8

GROUP 8	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Rocky Mountain <u>1/</u> <i>Juniperus scopulorum</i>	10-20	15-25/15	10-20	15-25/15	NOT	Recommended	NOT	Recommended
Pine, Bristlecone <i>Pinus aristata</i>	5-10	25-30/15	NOT	Recommended	NOT	Recommended	NOT	Recommended
Pine, Limber <i>Pinus flexilis</i> <u>1/</u>	10-15	25-40/15	10-15	25-45/15-20	15-20	30-45/15-20	20-25	35-55/15-20
Pine, Pinion <i>Pinus edulis</i>	5-10	20-25/20-25	NOT	Recommended	NOT	Recommended	NOT	Recommended
Pine, Ponderosa <i>Pinus ponderosa</i> <u>1/</u>	15-25	30-50/20	15-20	30-55/20	20-30	35-55/20	20-35	40-60/20
Pine, Southwestern White <i>Pinus strobiformis</i>	15-25	30-50/20	15-30	30-55/20	NOT	Recommended	NOT	Recommended
Redcedar, Eastern <i>Juniperus virginiana</i> <u>1/</u>	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20

GROUP 8	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Apricot, Manchurian <i>Prunus armeniaca</i> var. Mandshurica	NOT	Recommended	NOT	Recommended	10-15	10-15/10	10-20	10-20/10
Ash, Green (See Table 11 Comments) <i>Fraxinus pennsylvanica</i> <u>1/</u>	10-15 NOT	20-25/20 Recommended	10-15 NOT	20-25/20 Recommended	10-15 NOT	20-25/20 Recommended	10-15 NOT	25-30/20-25 Recommended
Aspen, Quaking <i>Populus tremuloides</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	15-20	20-30	15-20	20-30
Catalpa, Northern <i>Catalpa speciosa</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	15-20	30-35/20	15-20	30-35/25
Elm, Siberian <i>Ulmus pumila</i> <u>1/</u>	15-20	30-35/20	15-20	20-35/20	NOT	Recommended	NOT	Recommended
Hackberry <i>Celtis occidentalis</i> <u>1/</u>	10-15	25-30/20	10-15	25-30/20	10-15	25-30/20	10-15	30-35/30

GROUP 8	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Honeylocust <i>Gleditsia triacanthos</i> <u>1/</u>	NOT	Recommended	10-15	20-25/15-20	10-15	20-25/20	25-35	40-50/25-30
Oak, Bur <i>Quercus macrocarpa</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	10-15	25-35/30	15-20	40-60/30-40
Oak, English <i>Quercus robur</i>	NOT	Recommended	NOT	Recommended	25-35	50-60	30-40	55-65
Oak, Gambel <i>Quercus gambelii</i> <u>1/</u>	5-10	15-20	10-15	25	NOT	Recommended	NOT	Recommended
Olive, Russian <i>Elaeagnus angustifolia</i> (Recommended cultivar:King-red) <u>1/</u>	10-20	10-20/15 (Upland sites only)	15-20	15-20/15 (Upland sites only)	NOT	Recommended	NOT	Recommended
Osage-orange <i>Maclura pomifera</i> <u>1/</u>	NOT	Recommended	NOT	Recommended	10-15	20-25/15-20	10-15	30-35/20-25

GROUP 8	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Antelope Bitterbrush <i>Purshia tridentate</i>	2-3	2-3, Panhandle only	NOT Recommended	NOT Recommended
Buffaloberry, Silver <i>Shepherdia argentea</i>	5-8	10-12	10-12	10-12
Caragana (Siberian Peashrub) <i>Caragana arborescens</i> <u>1/</u>	6-8	6-8	8-10	8-10
Chokecherry, Common <i>Prunus virginiana</i>	5-8	6-12	6-12	8-14
Currant, Buffalo <i>Ribes odoratum</i> <u>1/</u>	2-4	2-4	3-6	3-6
Currant, Golden <i>Ribes aureum</i> <u>1/</u>	2-4	2-4	4-6	4-6
Lilac <i>Syringa vulgaris</i> <u>1/</u>	5-6	5-6	5-8	6-10

GROUP 8	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Mahogany, Mountain <i>Cercocarpus montana</i> <u>1/</u>	5-10	5-10, Panhandle only	NOT Recommended	NOT Recommended
Plum, American <i>Prunus americana</i> <u>1/</u>	5-7	5-8	5-8	6-10
Sumac, Skunkbush <i>Rhus trilobata</i> Recommended cultivars: Big horn, Konza fragrant <u>1/</u>	3-5	4-6c	4-6	4-8

GROUP 8	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS SHRUBS	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Prostrate <i>Juniperus communis</i> <u>1/</u>	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15	4-7	4-7/15

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ NOT winter hardy in the northern part of zones I, II, III, however NOT a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival

CONSERVATION TREE/SHRUB GROUP 9**Description:**

Salinity and/or alkalinity affect soils in this group. These soils have a seasonal high water table within 1.5 feet of the surface during the growing season. Soil depth is >20 inches to a restrictive layer and Available Water Capacity is >2 inches within the top 5 feet.

Limitations:

Concentrations of salt will severely affect the establishment, vigor and growth of trees and shrubs on these soils. Conifers should NOT be used on soils with a seasonal high water table within 2 feet of the surface.

Trees and shrubs appear to be growing in Group 9 soils; however, the trees and shrubs are actually limited to the transition zone between the Group 9 soils and the adjacent groups or are restricted to places where the site is slightly higher in elevation (increased depth to seasonal high water table) than the Group 9 soils.

Soils CTSG 9: (Slopes 17% or less) (List soil map units for your county/field office area)

TABLE 9 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 9

GROUP 9	ZONE I		ZONE II		ZONE III		ZONE IV	
CONIFEROUS TREES *	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Juniper, Rocky Mountain <i>Juniperus scopulorum</i>	10-20	15-25/15	10-20	15-25/15	NOT	Recommended	NOT	Recommended
Pine, Bristlecone <i>Pinus aristata</i>	5-10	25-30/15	NOT	Recommended	NOT	Recommended	NOT	Recommended
Pine, Pinion <i>Pinus edulis</i>	5-10	20-25/20-25	NOT	Recommended	NOT	Recommended	NOT	Recommended
Pine, Ponderosa <i>Pinus ponderosa</i>	15-25	30-50/20	15-30	30-55/20	20-30	35-55/20	20-35	40-60/20
Redcedar, Eastern <i>Juniperus virginiana</i>	10-20	20-25/15	10-20	20-25/15	10-25	25-35/15-20	15-25	30-40/20

* Do NOT utilize these species if the site has a seasonal high water table within 2 feet of the surface.

GROUP 9	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Ash, Green (See Table 11 Comments) <i>Fraxinus pennsylvanica</i>	15-20 NOT	25-35/25 Recommended	20-25 NOT	30-40/30 Recommended	20-30 NOT	35-45/30 Recommended	25-30 NOT	40-50/30-40 Recommended
Boxelder <i>Acer negundo</i>	15-20	25-35/20	15-20	25-35/20	15-20	30-35/20	20-25	35-40/20
Cottonwood, Eastern <i>Populus deltoides</i> (Recommended cultivars: Might Mo, Noreaster, Platte)	30-55	60-80/40	30-55	65-85/40	45-55	65-85/40	NOT	Recommended
Elm, Siberian <i>Ulmus pumila</i>	15-30	15-35/20	15-35	20-40/20	NOT	Recommended	NOT	Recommended

GROUP 9	ZONE I		ZONE II		ZONE III		ZONE IV	
DECIDUOUS TREES	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)	20-YEAR HEIGHT (ft)	MATURE HGT/SPREAD (ft)
Olive, Russian <i>Elaeagnus angustifolia</i> (Recommended cultivar: King-red)	10-20	10-20/15 (Upland sites only)	15-20	15-20/15 (Upland sites only)	NOT	Recommended	NOT	Recommended
Willow, Black <i>Salix nigra</i>	20-25	30-35/20-30	20-25	30-35/20-30	25-30	30-35/20-30	25-30	30-35/20-30
Willow, Peachleaf <i>Salix amygdaloides</i>	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
Willow, White <i>Salix alba</i> (variety golden willow var. vitellilna)	20-25	30-35/20-30	20-25	30-35/20-30	25-30	30-35/20-30	25-30	30-35/20-30

GROUP 9	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Buffaloberry, Silver <i>Shepherdia argentea</i>	5-8	10-12	10-12	10-12
Buttonbush <i>Cephalanthus</i>	NOT Recommended	NOT Recommended	NOT Recommended	8-10
Caragana (Siberian Peashrub) <i>Caragana arborescens</i>	6-8	6-8	8-10	8-10
Dogwood, Gray <i>Cornus racemosa</i>	4-6	6-8	6-8	6-8
Dogwood, Redosier <i>Cornus sericea</i>	5-6	5-7	6-8	8-10
Sagebrush, Big <i>Artemisia tridentata</i>	3-6	NOT Recommended	NOT Recommended	NOT Recommended
Sagebrush, Silver <i>Artemisia cana</i>	3-6	NOT Recommended	NOT Recommended	NOT Recommended
Saltbush, Fourwing <i>Atriplex canescens</i>	2-5	NOT Recommended	NOT Recommended	NOT Recommended

GROUP 9	ZONE I	ZONE II	ZONE III	ZONE IV
DECIDUOUS SHRUBS	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)	20-YEAR HEIGHT (ft)
Sumac, Skunkbush <i>Rhus trilobata</i> Recommended cultivars: Big horn, Konza fragrant	3-5	4-6	4-6	4-8

- 1/ Adapted to calcareous soils
- 2/ While the plant may grow, its severely impacted by insect damage
- 3/ NOT winter hardy in the northern part of zones I, II, III, however NOT a problem in zone IV
- 4/ Requires conservation mulch to get established in zones I and II only
- 5/ Conservation mulch improves growth and survival

CONSERVATION TREE/SHRUB GROUP 10**Description:**

Soils in this group have one or more limiting characteristics such as soil depth, texture, drainage, channeled phases, available water capacity, slope or salts which severely limit planting, species selection, survival or growth of trees and shrubs.

Limitations:

Soils in this group are usually NOT recommended for tree/shrub planting practices such as windbreaks or wildlife and recreation plantings. However, onsite investigations may reveal that tree and shrub plantings can be made with special treatments (hand planting, scalp planting, specialized site preparation, drainage, or other specialized treatments). The selection of species must be tailored to the climate, soil, and site conditions. Specialized treatments and conditions required must be documented on the planting plan.

All soils on slopes 17 percent or greater, soils that are generally too wet, too shallow, or have other severely restrictive conditions, fall into group 10. Where an onsite investigation reveals that a planting can be made on a soil mapping unit in group 10, species should be selected from the windbreak suitability group that the soil would most likely fall into. Local knowledge of adapted species should also be taken into account.

For example, for a shallow soil over bedrock, trees or shrubs would be selected from group 6 or from group 2 for wet sites.

Soils WSG 10: (Slopes greater than 17%) (List soil map units for your county/field office area)

TABLE 10 - CONSERVATION TREE AND SHRUB SUITABILITY FOR GROUP 10

GROUP 10	ZONE I	ZONE II	ZONE III	ZONE IV
Species CANNOT be listed because soils in this group have one or more characteristics such as soil depth, texture, drainage, channeled phases, available water capacity, slope or salts which severely limit planting, species selection, survival or growth of trees and shrubs.				

**Table 11 - List of Attributes by Species for
Conservation Tree/Shrub Plantings in Nebraska**

Coniferous Trees	Native by Vegetative Zones I, II, III, or IV N = Not Native	Shade Tolerance (1)	Flood Tolerance (2)	Wildlife Value (3)				Windbreak Density (4)		Products (5)	Root Suckering (6) N = No, Y = Yes	Comments (7)
				Use Groups	Function	Rating	Season	Summer	Winter			
Arborvitae, American or Northern White Cedar (<i>Thuja occidentalis</i>)	N	L	M	SB	C	L	N/A	H	H	F	N	Native to Great Lakes region and Northeastern US. Prefers moist, fertile soils. Subject to winter burn. Plantings limited to eastern Nebraska. Height 20-30 ft.
Arborvitae, Oriental (<i>Platycladus orientalis</i>)	N	M	M	SB	C	L	N/A	H	H	F, B	N	Winter hardiness questionable in Vegetative Zone III (seed source important). Prefers moist, well-drained soils. Possible substitute for eastern redcedar in windbreaks. Plantings limited to eastern Nebraska. Height to 20 ft.
Baldcypress (<i>Taxodium distichum</i>)	N	M	H	SB	C	L	N/A	M	L	L	N	Deciduous conifer - rust fall color and loses needles in fall. Prefers acid soils; tolerates slightly alkaline soils. Drought tolerant. Winter hardiness questionable in Vegetative Zone III. Height to 60 ft.
Fir, Douglas (<i>Pseudotsuga menziesii</i>)	N	M	L	SB	B	M	F	H	H	C, L	N	Delicate; protect from strong winds. Uses include wildlife habitat - seed source is important for songbirds. Height to 60 ft.
Fir, White (<i>Abies concolor</i>)	N	H	L	SB	B	M	F	H	H	C	N	Delicate. Uses include wildlife habitat - seed source important for songbirds. Height to 60 ft.
Juniper, Rocky Mountain (<i>Juniperus scopulorum</i>)	I, II	M	L	SB GB	B	H	F/W	H	H	C, S	N	Cercospora a problem in eastern Nebraska. Only female plants produce seeds. Adapted to wide range of soil types. Drought tolerant. Use in windbreaks and wildlife habitat. Height to 40 ft.
Pine, Austrian (<i>Pinus nigra</i>)	N	L	L	SB GB	B	M	F/W	M	M	C	N	Affected by dothistroma and tip blight; moderately susceptible to pine wilt disease. Adapted to range of pH and soils. Drought tolerant. Use for windbreaks and wildlife habitat. Height to 50 ft.

Coniferous Trees	Native by Vegetative Zones I, II, III, or IV N = Not Native	Shade Tolerance (1)	Flood Tolerance (2)	Wildlife Value (3)				Windbreak Density (4)		Products (5)	Root Suckering (6) N = No, Y = Yes	Comments (7)
				Use Groups	Function	Rating	Season	Summer	Winter			
Pine, Bristlecone (<i>Pinus aristata</i>)	N	L	L	SB	C	L	N/A	M	M		N	Does not thrive in humid eastern prairies; susceptible to dothistroma and tip blight. Lives longer in dry climates; hardy and long-lived on sunny, dry, infertile sites. Height to 20 ft.
Pine, Eastern White (<i>Pinus strobus</i>)	N	M	L	SB	C	L	N/A	M	M	C, L, B	N	Needs protection from winds; avoid use in outside rows. Fine needles in clusters of five. Height to 60 ft.
Pine, Jack (<i>Pinus banksiana</i>)	N	L	L	SB	C	L	N/A	M	M		N	Moderately susceptible to pine wilt disease. Possible substitute for eastern redcedar in windbreaks. Adapted to range of pH and soils - including very sandy soils. Drought tolerant. Native to Great Lakes region and Canada. Height to 60 ft.
Pine, Limber (<i>Pinus flexilis</i>)	I	L	L	SB	C	L	N/A	M	M	F	N	Susceptible to dothistroma needle blight and blister rust. Slow growing. Windbreak species in Zone I. Native population in Kimball Co. Excellent for wildlife plantings. Use in multirow windbreaks only. Height to 50 ft.
Pine, Pinyon (<i>Pinus edulis</i>)	N	L	L	SB GB	B	H	F	H	H	C, P, F, E1	N	Slow growing. Excellent winter hardiness, drought resistant and tolerant of alkaline soils. Excellent species for wildlife. Pine 'nut' edible by wildlife and humans. Height to 30 ft.
Pine, Ponderosa (<i>Pinus ponderosa</i>)	I, II, III	L	L	SB GB	B	H	F/W	M	M	C, L, P, F, B	N	Susceptible to tip blight/Zimmerman moth. Use for windbreaks and wildlife habitat. Wild turkey utilize seed source. Prefers acid soils; tolerates low fertility and drought. Height to 50 ft.
Pine, Scotch (<i>Pinus sylvestris</i>)	N	L	L	SB	C	L	N/A	M	M	C	N	Most used pine for Christmas trees - otherwise, not recommended for planting due to high susceptibility to pine wilt disease . Prefers acid soils but pH adaptable. Not recommended for windbreaks or wildlife habitat . Height to 50 ft.
Pine, Southwestern White (<i>Pinus strobiformis</i>)	N	L	L	SB	C	L	N/A	M	M	C, F	N	Native to Arizona, New Mexico, and Mexico. Susceptible to dothistroma needle blight and blister rust. Faster growing than limber pine. Use as windbreak species in southwestern NE only. Seed source should be from elevations above 7600 ft. Height to 110 ft.
Redcedar, Eastern (<i>Juniperus virginiana</i>)	I, II, III, IV	M	M	SB GB	B	H	F/W	H	H	P, S, L	N	Invasive in grasslands in eastern and central Nebraska; only female plants produce seeds. Reliable windbreak species. Cercospora can be a problem. Height to 50 ft.

Coniferous Trees	Native by Vegetative Zones I, II, III, or IV N = Not Native	Shade Tolerance (1)	Flood Tolerance (2)	Wildlife Value (3)				Windbreak Density (4)		Products (5)	Root Suckering (6) N = No, Y = Yes	Comments (7)
				Use Groups	Function	Rating	Season	Summer	Winter			
Spruce, Colorado Blue (<i>Picea pungens</i>)	N	M	L	SB	B	M	F/W	H	H	C	N	Color range from green to blue. Uses include windbreaks and wildlife habitat. Height to 60ft.
Spruce, Norway (<i>Picea abies</i>)	N	M	L	SB	B	M	F/W	H	H		N	Long, banana shaped cones. Uses include windbreaks and wildlife habitat. Height to 60 ft.
Spruce, White (<i>Picea glauca</i>) (recommended Black Hills variety (<i>Picea glauca densata</i>))	N	M	L	SB	C	L	N/A	H	H		N	Small cones. Most tolerant spruce tree for wind, cold, heat, and drought. Height to 40 ft.

(1) **Shade Tolerance** - adaptation for underplantings (H = high, M = medium, L = low)

(2) **Flood Tolerance** - relative value in riparian locations (H = high tolerance of frequent Flood with poor drainage, M - medium tolerance to Flood and needs good drainage, L = low tolerance of Flood)

(3) **Wildlife Value - Use Groups:** SM = small mammals, LM = large mammals, SB = song birds, GB = game birds, MB = moths/butterflies; Function: F = food, C = cover, B = both;

Rating: H = high value on a long-term use, M = high value on a seasonal basis, L = value on a limited, short-term basis; Season when food is available: Sp =Spring,

Su = Summer, F = Fall, W = Winter, N/A = Not Applicable

(4) **Windbreak Density** - Summer = comparable protection from wind; Winter = comparable protection from wind and snow drifting; H = high, M = medium, L = low

(5) **Products** - C = Christmas trees, P = posts, S = shavings, L = lumber, F = firewood, B = biomass, E1 = edible directly off the plant, E2 = edible if processed

(6) **Root Suckering** - comparable aggressiveness to root sprout, N = No, Y = Yes

(7) **Comments** - check with your local state forester or natural resource professional for other possible considerations

Deciduous Trees	Native by Vegetative Zones I, II, III, or IV N = Not Native	Shade Tolerance (1)	Flood Tolerance (2)	Wildlife Value (3)				Windbreak Density (4)		Products (5)	Root Suckering (6) N = No, Y = Yes	Comments (7)
				Use Groups	Function	Rating	Season	Summer	Winter			
Apricot, Manchurian (<i>Prunus armeniaca</i>)	N	L	L	SM SB	F	M	Su	M	L	E2	N	Native of China. Cultivated for fruit. Varieties <i>mandshurica</i> Maxim. And <i>sibirica</i> L. are hardy with potential ornamental value in the northern Great Plains. Prefers sun; pH and soil adaptable. Autumn foliage golden. Use <u>native</u> fruit-bearing species in unaltered habitats. Songbirds attracted to fruit. Height to 30 ft.
Ash, Green (<i>Fraxinus pennsylvanica</i>)	I, II, III, IV	M	H	SM SB	B	H	Sp-F	M	L	F, L	N	Highly susceptible to Emerald Ash Borer that will kill infected trees; no known treatment exists . Once infected entire stands of ash will be impacted. Emerald Ash Borer has not been detected in Nebraska but infestation will likely occur in the near future. Due to high probability of Emerald Ash Borers reaching Nebraska, recommend seeking alternative species for tree or windbreak planting. Height to 70 ft.
Aspen, Quaking (<i>Populus tremuloides</i>)	I, II	L	L	GB LM	B	H	All	M	L		Y	Suckers when mature to form aspen grove. Buds and catkins eaten by birds; leaves and twigs provide big game browse. Height to 60 ft.
Basswood/Linden, American (<i>Tilia americana</i>)	III, IV	H	M	SB MB	B	M	Su/F	M	L	L	N	Native to eastern NE, west to Cherry County along the Niobrara River, and west to Morse Bluff on the Platte River. Also native from the eastern portions of the Dakotas, KS, and OK to the Atlantic Coast from NC to ME. Prefers sun to partial shade, deep, moist fertile soils; pH adaptable. Drought tolerant. Grows best on well watered, partially shaded sites protected from desiccating winds. Flowers used extensively by bees. Used as carving wood. Height to 70 ft.
Birch, Paper (<i>Betula papyrifera</i>)	II	M	L	SB LM	B	M	F/W	M	L		N	Native along Niobrara Valley. Bark is white and peeling Buds and twigs used to a limited degree by songbirds and deer, respectively. Short life span. Bronze birch borer a problem. Height to 50 ft.
Birch, River (<i>Betula nigra</i>)	N	M	M	SB LM	F	L	F/W	M	L		Y	Suitable for Vegetative Zone IV on moist soils. Bark has salmon pink shades. Height to 40 ft.
Boxelder (<i>Acer negundo</i>)	I, II, III, IV	L	H	SM SB	B	H	Sp-F	M	L		N	Short-lived tree with multiple trunk form. Provides good cavities for wildlife shelter. Hardy on poor sites; common in riparian areas. Songbirds attracted to seeds. Height to 50 ft.
Catalpa, Northern (<i>Catalpa speciosa</i>)	IV	L	M	MB SB	C	L	N/A	M	L	F	N	Large leaves; white flowers; long seed pods. Susceptible to ash borers. Height to 60 ft.
Cherry, Black (<i>Prunus serotina</i>)	III, IV	L	L	SB SM	B	H	Su	M	L	L, E2	N	Native to eastern Nebraska; prefers moist fertile soils on bottomlands. Valuable timber species. Height to 60 ft.

Deciduous Trees	Native by Vegetative Zones I, II, III, or IV N = Not Native	Shade Tolerance (1)	Flood Tolerance (2)	Wildlife Value (3)				Windbreak Density (4)		Products (5)	Root Suckering (6) N = No, Y = Yes	Comments (7)
				Use Groups	Function	Rating	Season	Summer	Winter			
Cottonwood, Eastern (<i>Populus deltoides</i>) (recommended cultivars: <i>Might Mo</i> , <i>Noreaster</i> , <i>Platte</i>)	I, II, III, IV	L	H	SM SB	B	H	F/W	M	L	B, L, S	N	Nebraska state tree. Susceptible to Cytospora canker on uplands. Prefers moist soils, especially along rivers and streams. Wildlife use twigs as browse when young and is a good den tree when mature. Height to 80 ft.
Crabapple (<i>Malus sp.</i>) (Siberian crab is <i>M. baccata</i> ; Sargent crab is <i>M. sargentii</i>)	N	L	L	SB SM	B	M	Su/F	M	L		N	Countless crabapple hybrids and varieties exist with varying characteristics. Radiant is a 25-30 ft. pink-flowered cultivar of Siberian that is susceptible to scab. Midwest is a 15-25 ft. white-flowered cultivar of Siberian. Roselow is a white-flowered, 6-8 ft., shrub-like cultivar of Sargent.
Crabapple, Prairie (<i>Malus ionensis</i>)	IV	L	L	SB SM	B	H	Su/F	M	L		Y	Species is native to extreme eastern Nebraska. Susceptible to cedar-apple rust. Fruit is small, hard, and green. Suckering roots form thickets. Height to 20 ft.
Elm, American (<i>Ulmus americana</i>)	I, II, III, IV	M	M	SB SM	B	M	Sp	M	L	F, L	N	Not recommended because of susceptibility to Dutch Elm Disease. Red or slippery elm (<i>Ulmus rubra</i>) may be a suitable native substitute. Height to 70ft.
Elm, Siberian (<i>Ulmus pumila</i>)	N	M	L	SB	B	L	Sp	M	L	F, L	N	Invasive into grasslands and disturbed areas by seedling establishment. Strongly suggest seeking alternate species. Often mistakenly called Chinese elm. Seeds eaten by songbirds. Height to 80 ft.
Hackberry (<i>Celtis occidentalis</i>)	I, II, III, IV	H	M	SB SM	B	H	Su	M	L	F, L	N	Common windbreak species; adapted to wide range of soils. Susceptible to herbicide drift. Nipple gall common on leaves. Songbirds eat seeds. Height to 70 ft.
Hawthorn, Cockspur (<i>Crataegus crusgalli</i>)	N	L	L	SB SM	B	H	F/W	M	L		N	Native to eastern US. Sharp thorns on some varieties. Red fruits persist into winter. Height to 20 ft.
Hawthorn, Washington (<i>Crataegus phaenopyrum</i>)	N	L	M	SB SM	B	H	F/W	M	L		N	Common conservation species. Often thorny. Red berries persist into winter. Possible rust problems. Height to 30 ft.
Hickory, Bitternut (<i>Carya cordiformis</i>)	III, IV	M	M	SM SB	B	H	F	M	L	F	N	Native to eastern Nebraska in association with oaks. Slow growing. Bark is smooth. Nut is bitter. Height to 80 ft.
Hickory, Shagbark (<i>Carya ovata</i>)	IV	M	L	SM SB	B	H	F	M	L	L, F, E2	N	Native to Missouri River bluff woodlands. Extremely slow growing. Bark forms large plates when mature. Nut is edible but extraction is difficult. Height to 80 ft.

Deciduous Trees	Native by Vegetative Zones I, II, III, or IV N = Not Native	Shade Tolerance (1)	Flood Tolerance (2)	Wildlife Value (3)				Windbreak Density (4)		Products (5)	Root Suckering (6) N = No, Y = Yes	Comments (7)
				Use Groups	Function	Rating	Season	Summer	Winter			
Honeylocust (<i>Gleditsia triacanthos</i>)	III, IV	L	M	LM SM	F	M	Su-F	M	L	F, L	Y	Nitrogen fixing legume. Common windbreak tree. Seeds eaten by small mammals; pods eaten by cattle. Possible thorns. Potentially invasive in grasslands in eastern Nebraska. Height to 60 ft.
Hophornbeam, Eastern or Ironwood (<i>Ostrya virginiana</i>)	III, IV	H	L	SM SB	B	M	Su	M	L	F	N	Difficult to obtain as nursery stock. Small tree with very dense wood. Understory species that does well in shady conditions. Height to 40 ft.
Kentucky Coffeetree (<i>Gymnocladus dioicus</i>)	III, IV	L	L	SB	C	L	N/A	M	L		Y	Nitrogen fixing legume. Prefers moist fertile soils but adapted a wide range. Drought resistant. Possible toxicity of seeds to humans. Non-aggressive root suckering. Height to 60 ft.
Locust, Black (<i>Robinia pseudoacacia</i>)	N	L	L	SB	C	L	N/A	M	L	P, F	Y	Nitrogen fixing legume. Problems with locust borer. Bark and seeds may be toxic. Aggressive root suckering; potentially invasive due to spontaneous root suckers causing clonal spread. Height to 60 ft.
Maple, Amur (<i>Acer ginnala</i>) (recommended cultivar: Flame)	N	M	M	SB	B	H	Su-W	M	L		N	Small tree or large shrub form. Beautiful autumn color. Seeds eaten by songbirds and twigs browsed by deer. Height to 15 ft.
Maple, Silver (<i>Acer saccharinum</i>)	III, IV	M	H	SM SB	B	M	Sp/Su	M	L	B, F	Y	Narrow crotch angles may produce multiple stems; susceptible to wind breakage. Non-aggressive root suckering. Fastest growing maple. Common in riparian areas. Height to 60 ft.
Maple, Sugar (<i>Acer saccharum</i>)	N	M	M	SM SB	B	M	Sp/Su	M	L	F, L, E2	Y	Orange/red fall color. Winter hardiness questionable in northern Nebraska. Sap is source of maple syrup. Non-aggressive root suckering. Height to 60 ft.
Mulberry, Red (<i>Morus rubra</i>)	IV	H	L	SB SM	B	H	Sp	M	L	F, P, E1, E2	N	Native to southeast Nebraska. Leaves often not lobed compared to white mulberry and all fruits mature purple to black. Only female plants produce seeds. Height to 50 ft.
Mulberry, Russian or White (<i>Morus alba</i> var. <i>tatarica</i>)	N	H	L	SB SM	B	M	Sp	M	L	E1, E2	N	Hybridizes with red mulberry in the wild. Leaves often lobed compared to red mulberry and some fruits mature as white. Only female plants produce seeds. Height to 40 ft.
Oak, Black (<i>Quercus velutina</i>)	IV	M	L	SM GB	B	H	F	M	L	F	N	Natural site is typically rocky, sandy to clay soil on a dry upland. Approaches northern red oak stature on fertile, bottomland soil. Autumn foliage red, leaves persist through winter. Grows best on sunny site in fertile, moist soil, neutral to acidic. Height to 50 ft.

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				Use Groups	Function	Rating	Season	Summer	Winter			
Oak, Bur (<i>Quercus macrocarpa</i>)	I, II, III, IV	M	L	SM GB	B	H	F	M	L	F, L	N	Drought tolerant. Prefers sunny site; pH and soil adaptable. Tolerates occasional poor drainage and inundation. Round, wide spreading crown. Name from bur-like fringe located around rim of acorn cup. Ranges from south central Canada throughout the Great Plains states. Lacks bright fall color. Drops leaves after first sharp freeze. Height to 75 ft.
Oak, Chinkapin (<i>Quercus muhlenbergii</i>)	IV	L	L	SM GB	B	H	F	M	L	F	N	Drought tolerant. Prefers sunny site; pH and soil adaptable. Generally grown on well-drained sites, from streambanks to dry ridges, with a preference for soils of limestone origin. Seldom found on acidic soils. Sweet acorns were consumed by Native Americans and are excellent wildlife food. Rounded crown. Ranges from central TX and OK to eastern KS and the northeastern U.S. Does not display bright fall colors. Height to 60 ft.
Oak, English (<i>Quercus robur</i>)	N	M	L	SM GB	B	H	F	M	L	F, L	N	Native to Europe, East Asia, and North Africa, resulting is extensive genetic variability. Recognized by long-stalked acorns. Drought tolerant. Prefers sunny site; pH and soil adaptable. Height to 65 ft.
Oak, Gambel (<i>Quercus gambelii</i>)	I	L	L	SM GB	B	H	F	M	L		N	Suitable for small spaces and dry sites. Ranges from dry foothills, canyons, and lower slopes of mountains of NV, UT, CO, AZ, NM, and fringes of adjoining states and Mexico. Locally known and scrub oak due to slow growth and tendency to form thickets. Acorns are excellent wildlife food. Crown is narrow and sparse. Wood is hard, heavy and close grained. Prefers sunny sites; pH and soil adaptable; drought tolerant. Height to 20 ft.
Oak, Northern Red (<i>Quercus rubra</i>)	IV	M	L	SM GB	B	H	F	M	L	F, L	N	Native to states east of the Great Plains; grows on eastern fringes of the Plains. Acorns valuable wildlife food. Is a substitute for pin oak in many situations with less chance of becoming chlorotic on calcareous soils. Produces strong, hard wood used in flooring, furniture, veneer, and interior finishing. Rounded spreading crown. Reddish autumn color. Grows best in sun. Prefers fertile, moist soils, neutral to acidic. Drought tolerant. Height to 70 ft.
Oak, Pin (<i>Quercus palustris</i>)	N	L	H	SM GB	B	H	F	M	L	F	N	Native to the U.S. from eastern KS to the Atlantic coast and from TN to southern MI. Acorns valuable wildlife food. Grows naturally on poorly drained, claypan soils and withstands short periods of flooding. Iron chlorosis and growth stunting are problems if planted in calcareous soils. Prefers sun to partial shade, fertile, moist, neutral to acidic soils. Pyramidal crown. Variable autumn foliage from green to shades of yellow and red. Does not produce high quality lumber due to many small persistent branches. Height to 60 ft.

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				Use Groups	Function	Rating	Season	Summer	Winter			
Oak, Swamp White (<i>Quercus bicolor</i>)	N	M	H	SM GB	B	H	F	M	L	F	N	Occurs naturally in lowlands and swamp edges from IA to MO eastward to the Atlantic coast. Easily mistaken for bur oak or white oak due to leaf similarities. It Has long and slender-stalked acorns similar to English oak. Prefers sun and moist, fertile, neutral to acidic soils. Tolerates compact soils high in clay. Rounded crown. Autumn foliage from subdued brownish yellows and reds, often persistent through winter. Acorns valuable wildlife food. Wood is heavy, strong, hard, moderately durable. Height to 60 ft.
Oak, White (<i>Quercus alba</i>)	IV	M	L	SM GB	B	H	F	M	L	F, L	N	Native to southern MN, IA, south into eastern TX and all states to the east. Desirable windbreak tree in Zone IV because leaves tend to persist throughout winter. Round crown. Durable wine red autumn foliage. Acorns provide wildlife food. Prefers sun, fertile, moist, neutral to acidic soils. Can be found on upland sites within its native range. Drought tolerant. Height to 70 ft.
Olive, Russian (<i>Elaeagnus angustifolia</i>)	N	L	H	SB GB	F	M	F/W	M	L		Y	Extremely invasive along rivers, streams and wetlands. Recommend seeking alternate species. Susceptible to canker; 20 year life span. Extensive root suckering if disturbed. Alternative to consider is Silverscape Olive (<i>Elaeagnus x jefmorg</i>) that produces sterile fruit and reduced suckering. Height to 30 ft. Plant on upland sites only.
Osage-orange (<i>Maclura pomifera</i>)	N	L	M	SB GB	B	M	Su/F	M	L	P, F	N	Extremely hard, durable wood for posts. Large 'hedge apple' fruit; seeds eaten by quail/squirrels. Not very winter hardy. Invasive into grasslands in southeast NE. Height to 40 ft.
Pawpaw (<i>Asimina Adans</i>)	IV	H	L	SM SB	F	L	Su	M	L	E2	N	Recommended only in southeast Nebraska. Potential medicinal use. Fruit can be consumed by humans. Height to 25 ft.
Pear, Harbin (<i>Pyrus ussuriensis</i>) (recommended cultivar: McDermand)	N	L	L	SM SB	B	L	Su/F	M	L		N	Slow growth but well adapted to northern prairie climate. White flowers; reddish fall leaf color; round greenish-yellow to light brown fruit. Height to 30 ft.
Pecan, Northern (<i>Carya illinoensis</i>)	N	L	L	SM SB	B	H	F	M	L	L, E1, E2	N	Use northern seed source or hardy cultivars. Excellent nut species and valuable timber species. Suitable to southeast Nebraska (southern half of Veg. Zone 4 only). Height to 80 ft.
Redbud, Eastern (<i>Cercis canadensis</i>)	IV	H	L	SB MB	F	M	F	L	L		N	Winter hardiness is questionable (seed source important). Susceptible to 2,4-D herbicide. Beautiful early spring flowers. Height to 30 ft.
Sycamore, American (<i>Platanus occidentalis</i>)	IV	L	H	SB SM	C	L	N/A	M	L	B, L	N	Anthracnose disease is a potential problem. Prefers deep, moist rich soils found in bottomlands. Height to 80 ft.

Deciduous Trees	Native by Vegetative Zones I, II, III, or IV N = Not Native	Shade Tolerance (1)	Flood Tolerance (2)	Wildlife Value (3)				Windbreak Density (4)		Products (5)	Root Suckering (6) N = No, Y = Yes	Comments (7)
				Use Groups	Function	Rating	Season	Summer	Winter			
Walnut, Black (<i>Juglans nigra</i>)	III, IV	L	L	SM	F	H	F	M	L	L, F, E2	N	Sensitive to broadleaf herbicides. Green husk on nut turning dark brown at maturity. Needs well-drained soils. Most valuable of timber trees. Height to 70 ft.
Willow, Black (<i>Salix nigra</i>)	III, IV	L	H	SB GB LM	B	H	F/W	M	L	B	N	Native only to extreme eastern Nebraska. Often confused with peachleaf willow. Short-lived species. Buds and twigs consumed by various wildlife species. Cytospora canker on upland sites. Height to 60 ft.
Willow, Peach Leaf (<i>Salix amygdaloides</i>)	I, II, III, IV	L	H	SB GB LM	B	H	F/W	M	L		N	Native across Nebraska - especially central and west. Similar to black willow but leaves are slightly wider and whitish on underside. Buds and twigs consumed by various wildlife species. Used by cavity nesting birds. Height up to 60 ft.
Willow, White (or Golden) (<i>Salix alba</i>) (cultivars Vitellina or Tristis often called Golden Willow)	N	L	H	SB SM	C	L	N/A	M	L		N	Grows well in wet sites and may colonize naturally along streams and in wetlands. Tristis is the most hardy cultivar. Cytospora canker on upland sites. Height to 60 ft.

(1) **Shade Tolerance** - adaptation for underplantings (H = high, M = medium, L = low)

(2) **Flood Tolerance** - relative value in riparian locations (H = high tolerance of frequent Flood with poor drainage, M - medium tolerance to Flood and needs good drainage, L = low tolerance of Flood)

(3) **Wildlife Value - Use Groups:** SM = small mammals, LM = large mammals, SB = song birds, GB = game birds, MB = moths/butterflies; Function: F = food, C = cover, B = both;

Rating: H = high value on a long-term use, M = high value on a seasonal basis, L = value on a limited, short-term basis; Season when food is available: Sp = Spring, Su = Summer, F = Fall, W = Winter

(4) **Windbreak Density** - Summer = comparable protection from wind; Winter = comparable protection from wind and snow drifting; H = high, M = medium, L = low

(5) **Products** - C = Christmas trees, P = posts, S = shavings, L = lumber, F = firewood, B = biomass, E1 = edible directly off the plant, E2 = edible if processed

(6) **Root Suckering** - comparable aggressiveness to root sprout, N = No, Y = Yes

(7) **Comments** - check with your local state forester or natural resource professional for other possible considerations

Shrubs	Native by Vegetative Zones I, II, III, or IV N = Not Native	Shade Tolerance (1)	Flood Tolerance (2)	Wildlife Value (3)				Windbreak Density (4)		Products (5)	Root Suckering (6) N = No, Y = Yes	Comments (7)
				Use Groups	Function	Rating	Season	Summer	Winter			
Antelope Bitterbrush (<i>Purshia tridentate</i>)	I	L	L	LM SM	B	H	F/W	M	L		N	Excellent big game browse species and small mammals eat seeds. Height to 3 ft.
Buffaloberry, Silver (<i>Shepherdia argentea</i>)	I, II, III	L	M	SB GB	B	H	F/W	H	M	E1, E2	Y	Thorny shrub with red-orange fruit. Cold and drought hardy. Minimum spacing 5x5; can be planted in coarse and medium soils. Height 10-12 ft.
Buttonbush (<i>Cephalanthus occidentalis</i>)	IV	L	H	GB	B	L	F	M	L		Y	Recommended only in southeast Nebraska. Seeds eaten by waterfowl. Prefers moist sites. Minimum spacing is 4X4; can be planted in coarse, medium and fine soils. Height 8-12 ft.
Cherry, Nanking (<i>Prunus tomentosa</i>)	N	L	L	SB SM	B	M	Su	M	L	E1, E2	N	Short-lived <10 years. Early fruit producer of sweet cherries. Minimum spacing 6x6; can be planted in coarse and medium soils. Height 5-7 ft.
Chokeberry, Black (<i>Aronia melanocarpa</i>)	N	L	L	SB LM	B	H	F/W	M	L		Y	Blackish purple fruits persist into winter. Minimum spacing 4x4; can be planted in coarse, medium and fine soils. Height 3-8 ft
Chokecherry, Common (<i>Prunus virginiana</i>)	I, II, III, IV	M	M	SB GB	B	H	Su	H	M	E1, E2	Y	Red fall leaf color. Small dark fruit is bitter without processing. Minimum spacing 4x4; can be planted in coarse, medium and fine soils. Height 8-14 ft.
Coralberry (<i>Symphoricarpos orbiculatus</i>)	III, IV	M	M	SB SM	B	H	F/W	M	L		Y	Reddish-pink berries persist into winter. Height 3 ft.
Cotoneaster, Peking (<i>Cotoneaster acutifolia</i>)	N	L	M	MB SB	B	M	F/W	H	M		N	Fire blight possible problem. Minimum spacing 5x5; can be planted in coarse, medium and fine soils. Height 5-10 ft.
Cranberry, American or Highbush (<i>Viburnum trilobum</i>)	N	M	M	SB	B	M	F/W	H	M	E2	N	Bright red berries persist into winter. Makes ruby red jelly/jam. Minimum spacing 6x6; can be planted in coarse, medium and fine soils. Height 10-12 ft.
Currant, Buffalo (<i>Ribes odoratum</i>)	I, II, III, IV	M	L	SB SM	B	M	Su	H	M	E1, E2	Y	Adapted to a variety of sites. Minimum spacing 5x5; can be planted in medium soils. Height 4-6 ft.
Currant, Golden (<i>Ribes aureum</i>)	I, II, III, IV	M	L	SB SM	B	M	Su	H	M	E1, E2	Y	Adapted to a variety of sites. Minimum spacing 5x5; can be planted in medium soils. Buffalo currant (<i>Ribes odoratum</i>) is a closely related species. Height 4-6 ft.
Dogwood, Gray (<i>Cornus racemosa</i>)	III, IV	H	H	SB	B	H	Su/F	H	M		Y	Understory shrub that grows in full shade to sun. Suckers to form thickets. Minimum spacing 3x3; can be planted in coarse, medium and fine soils. understory shrub. Height 6-10 ft.

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				Use Groups	Function	Rating	Season	Summer	Winter			
Dogwood, Redosier (<i>Cornus sericea</i>)	I, II, III, IV	M	H	SB LM	B	H	F/W	M	L		Y	Red stems in winter. Good riparian buffer species. Provides browse for big game. Minimum spacing 4X4; can be planted in coarse, medium and fine soils. Height 8-10 ft.
Elderberry (<i>Sambucus canadensis</i>)	III, IV	L	H	MB SB	F	M	Su	H	M	E1, E2	Y	Prefers moist sites. Root sprouts readily; leaves and stems may be toxic. Minimum spacing 5x5; can be planted in medium soils. Height 4-8 ft.
Euonymus, Winterberry (<i>Euonymus bungeanus</i>) (recommended cultivar: Pink Lady)	N	M	M	SB	B	L	F/W	M	L	E1	N	Large shrub-small tree form. Bright orange-red seeds in the fall. Cultivar released by Manhattan PMC. Height to 20 ft.
Hazelnut, American (<i>Corylus americana</i>)	IV	M	M	SB SM	B	H	F	M	L	E1	Y	Susceptible to canker. Nuts enclosed in downy bracts. Minimum spacing 5x5; can be planted in medium and fine soils. Height 6-10 ft.
Honeysuckle, Amur (<i>Lonicera maackii</i>) (recommended cultivar: Cling-red)	N	H	L	MB SB	B	M	F	M	L	B	N	Occurs on the NE Dept. of Ag Invasive Species "Watch List". Recommend seeking alternate species. Possible aphid problems. Minimum spacing 6x6; can be planted in coarse, medium, and fine soils. Fruit may be toxic to humans. Height 5-15 ft.
Indigo, False (<i>Amorpha fruticosa</i>)	II, III, IV	L	H	SB	C	L	N/A	M	L		Y	Legume with seed pod. Native along riparian areas and prefers moist soils. Minimum spacing 4x4; can be planted in coarse, medium and fine soils. Height 5-10 ft.
Juneberry/ Serviceberry, Saskatoon (<i>Amelanchier alnifolia</i>)	I, II, III	H	M	SB LM	B	H	Su	H	M	E1, E2	Y	Native to northern Nebraska. Produces near black, edible fruit. Minimum spacing 5x5; can be planted in coarse, medium, and fine soils. Height 6-12 ft.
Juniper, Prostrate (<i>Juniperus communis</i>)	I, II	M	L	SM SB	B	M	F/W	M	M		N	Evergreen shrub to small tree. Numerous varieties in several forms (prostrate to upright). Certain varieties subject to bagworms, cercospora. Available from Lawyer Nursery, MT (unknown variety or seed source). Height 3 to 15 ft.
Lilac (<i>Syringa vulgaris</i>)	N	L	L	SB MB	B	M	Su	H	M		Y	Hardy shrub. Purple flowers result in persistent seed capsule. Powdery mildew a potential problem. Minimum spacing 6x6; can be planted in coarse, medium and fine soils. Height 6-10 ft.

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				Use Groups	Function	Rating	Season	Summer	Winter			
Mahogany, Mountain (<i>Cercocarpus montanus</i>)	I	L	L	LM	F	H	F/W	M	L		N	Excellent big game browse species. Plumose fruits persist into winter. Drought tolerant. Height 5-10 ft.
Nannyberry (<i>Viburnum lentago</i>)	III, IV	M	M	SB	B	H	Su	M	L		Y	Small tree or large shrub form. Good for wildlife habitat or windbreaks; drought tolerant; may be confused with Black Haw (<i>Viburnum rufidulum</i>). Height to 25 ft.
Olive, Autumn (<i>Elaeagnus umbellata</i>) (recommended cultivars: Redwing, Elsberry)	N	L	L	SB GB	F	M	F	M	L		Y	Potentially invasive, especially in eastern Nebraska. Nitrogen fixing legume. Winter injury and susceptible to canker. Minimum spacing 4x4; can be planted in coarse, medium and fine soils. Height 12-14 ft.
Peashrub, Siberian (<i>Caragana aborescens</i>)	N	L	L	SB	F	L	F	H	M	B	Y	Legume. Cold and drought hardy. Effective windbreak species. Readily defoliated by grasshoppers. Minimum spacing 5x5; can be planted in medium and fine soils. Height 8-12 ft.
Plum, American (<i>Prunus americana</i>)	I, II, III, IV	M	M	GB SB	B	H	Su	H	M	E1, E2	Y	Medium pink-red fruits. Widely adapted. Suckers to make dense thickets. Minimum spacing for wildlife 2x2; can be planted in coarse and medium soils. Height 8-12 ft.
Rose, Arkansas (<i>Rosa arkansana</i>)	I, II, III, IV	L	L	GB SB	B	H	F/W	L	L	E2	Y	Also called prairie rose. Height to 2 ft.
Rose, Hansen (<i>Rosa sp.</i>)	N	L	L	SB MB	B	H	F/W	M	L		Y	Woods or Arkansas Rose preferred on unaltered habitats. Origin might be SDSU selection of Rosa rugosa x Rosa woodsii. Height to 6 ft.
Rose, Woods (<i>Rosa woodsii</i>)	I, II, III	L	L	GB SB	B	H	F/W	M	L	E2	Y	Preferred winter food for prairie grouse. Available through some NRDs. Height to 5 ft.
Sagebrush, Big (<i>Artemisia tridentata</i>)	I	L	L	LM SM	B	H	F/W	M	L		N	Excellent big game browse species - maintains leaves in winter for high protein diet. Provides big game fawning habitat. Rodents eat seeds. Height 3-6 ft.
Sagebrush, Silver (<i>Artemisia cana</i>)	I	L	L	LM	B	H	F/W	M	L		N	Excellent big game browse species. Provides cover for big game fawning habitat. Height 2-5 ft.

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				Use Groups	Function	Rating	Season	Summer	Winter			
Saltbush, Fourwing (<i>Atriplex canescens</i>)	I	L	L	LM SM	B	M	F/W	M	L		N	Maintains leaves in winter. Seeds are persistent. Limit use to high pH and alkaline soils. Height to 2-5 ft.
Sandcherry, Western (<i>Prunus besseyi</i>)	I, II, III	L	L	GB SB SM	F	M	Su	M	L	E1, E2	Y	Early fruit producer of dark sweet cherries. Minimum spacing for wildlife 2x2; can be planted in coarse and medium soils. Height 4-6 ft.
Snowberry, Common (<i>Symphoricarpos albus</i>)	III, IV	M	M	SB SM	B	H	F/W	M	L		Y	Whitish berries persist into winter. Western snowberry (<i>Symphoricarpos occidentalis</i>) is a very similar species native to Vegetative Zones I, II, III and IV. Used for windbreaks and wildlife habitat. Height 2-3 ft.
Snowberry, Western (<i>Symphoricarpos occidentalis</i>)	I, II, III, IV	M	M	SB SM	B	H	F/W	M	L		Y	Potential to spread in rangeland. Whitish berries persist into winter. Common snowberry (<i>Symphoricarpos albus</i>) is a very similar species native to Vegetative Zones III and IV. Used for windbreaks and wildlife habitat. Height 2-3 ft.

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				Use Groups	Function	Rating	Season	Summer	Winter			
Sumac, Skunkbush (<i>Rhus trilobata</i>) (recommended cultivars: Big horn, Konza fragrant)	I, II, III, IV	L	L	SM SB	B	M	F/W	M	L		N	Good red fall foliage. Leaves have pungent odor. Red fuzzy seed is persistent and not consumed widely by wildlife. Minimum spacing 4x4; can be planted in coarse and medium soils. Height 4-8 ft.
Willow, Sandbar (<i>Salix exigua</i>)	I, II, III, IV	M	H	LM SB	C	M	N/A	H	M	B	Y	Excellent riparian buffer species. Controls streambank erosion and provides wildlife cover. Height to 15 ft.

(1) **Shade Tolerance** - adaptation for underplantings (H = high, M = medium, L = low)

(2) **Flood Tolerance** - relative value in riparian locations (H = high tolerance of frequent Flood with poor drainage, M - medium tolerance to Flood and needs good drainage, L = low tolerance of Flood)

(3) **Wildlife Value - Use Groups:** SM = small mammals, LM = large mammals, SB = song birds, GB = game birds, MB = moths/butterflies; Function: F = food, C = cover, B = both;

Rating: H = high value on a long-term use, M = high value on a seasonal basis, L = value on a limited, short-term basis; Season when food is available: Sp =Spring,

Su = Summer, F = Fall, W = Winter, N/A = Not Applicable

(4) **Windbreak Density** - Summer = comparable protection from wind; Winter = comparable protection from wind and snow drifting; H = high, M = medium, L = low

(5) **Products** - C = Christmas trees, P = posts, S = shavings, L = lumber, F = firewood, B = biomass, E1 = edible directly off the plant, E2 = edible if processed

(6) **Root Suckering** - comparable aggressiveness to root sprout, N = No, Y = Yes

(7) **Comments** - check with your local state forester or natural resource professional for other possible considerations

Primary References

Bagley, Walter T. and Richard K. Sutton. 2002. Woody Plants for the Central and Northern Prairies. The Blackburn Press, Caldwell, NJ 07006. 604 pp.

Martin, Alexander C., Herbert S. Zim and Arnold L. Nelson. 1951. American Wildlife & Plants: A Guide to Wildlife Food Habitats. Dover Publications, Inc., New York, NY. 500 pp.